

Service Manual

• KEH-M780/US



ORDER NO.
CRT1509

MULTI-CD CONTROL FM/AM TUNER DECK AMPLIFIER

KEH-M780

US

KEH-M8500

US

KEH-M8550

ES

NOTE:

- See the separate manual CX-529 (CRT1507) for the cassette mechanism description.
- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double -D symbol are trademarks of Dolby Laboratories Licensing Corporation.

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SAFETY INFORMATION (US MODEL)

CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5). When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

1. SPECIFICATIONS

●KEH-M780/US

General

| | |
|--------------------------------|---|
| Power Source..... | 14.4 V DC (10.8—15.6 V allowable) |
| Grounding system | Negative type |
| Max. current consumption | 7 A |
| Dimensions (chassis)..... | 178 (W) × 50 (H) × 150 (D) mm [7(W)×2(H)×5-7/8(D)in.] |
| (front face)..... | 170 (W) × 46 (H) × 18 (D) mm [6-3/4(W)×1-3/4(H)×3/4(D)in.] |
| Weight | 1.6 kg(3.5lbs.) |

Amplifier

Continuous power output is 14 W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.

| | |
|----------------------------|---|
| Maximum power output | 30 W × 4 (EIAJ) |
| Load impedance | 4Ω (4—8Ω allowable) |
| Tone controls (bass) | ±12 dB (100 Hz) |
| (middle)..... | ±12 dB (1kHz) |
| (treble) | ±12 dB (10 kHz) |
| Loudness contour | +12 dB (100 Hz), +7 dB (10 kHz) (volume: -30 dB) |

Nominal output level/
output impedance (pre out)

500 mV/1kΩ

Sub-woofer

| | |
|--------------------------|--------------------|
| Crossover frequency..... | 50 Hz/80 Hz/120 Hz |
| Crossover slope | -12 dB/octave |
| Output gain..... | -21 — +9 dB |

Tape player

| | |
|-------------------------------|--|
| Tape | Compact cassette tape (C-30—C-90) |
| Tape speed | 4.76cm/sec. (+0.14cm/sec., -0.05cm/sec.) |
| Fast forward/rewind time..... | Approx. 100 sec. for C-60 |
| Wow & Flutter..... | 0.09% (WRMS) |
| Frequency response | Metal: 30—19,000 Hz (±3 dB) |
| Stereo separation..... | 45 dB |
| Signal-to-noise ratio | Metal: Dolby C NR IN: 73 dB (IHF-A network) Dolby B NR IN: 67 dB (IHF-A network) Dolby NR OUT: 61 dB (IHF-A network) |

| | |
|---|---|
| FM-Tuner | |
| Frequency range..... | 87.9—107.9 MHz |
| Usable sensitivity..... | 8 dBf (0.7μV/75Ω, mono) |
| 50 dB quieting sensitivity..... | 13 dBf (1.2μV/75Ω, mono) |
| Signal-to-noise ratio..... | 70 dB (IHF-A network) |
| Distortion | 0.3%(at 65dBf, 1kHz, stereo) |
| Frequency response..... | 30—15,000 Hz (±3 dB) |
| Stereo separation | 40 dB (at 65 dBf, 1 kHz) |
| Three-signal intermodulation (desire signal level) | 50 dBf (two undesire signal level: 110 dBf) |

| | |
|-------------------------|---------------------------|
| AM-Tuner | |
| Frequency range..... | 530 — 1,710 kHz |
| Usable sensitivity..... | 18μV (25 dB) (S/N: 20 dB) |
| Selectivity..... | 50 dB (±9 kHz) |

These specifications were determined and are presented in accordance with specification standards established by the Ad Hoc Committee of Car Stereo Manufacturers.

Note:
Specifications and the design are subject to possible modification without notice due to improvements.

2. USING THE REMOVABLE FRONT PANEL

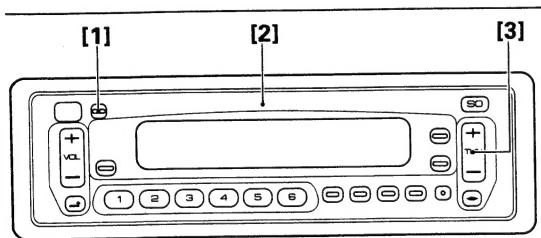


Fig.1

Parts Identification (Fig. 1)

- [1] Open button
- [2] Front panel
- [3] Buzzer ON/OFF

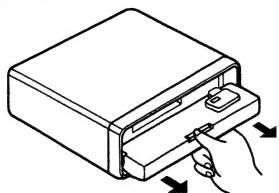
The front panel of this unit can be removed to prevent theft. Also, to prevent forgetting to remove the front panel, 5 seconds after the ignition is turned off, if the front panel is still attached, a buzzer will sound for a few seconds.

If you wish to cancel the sound of the buzzer, please do as follows.

Keep the minus side (-) of button [3] depressed and turn the vehicle's ignition key from OFF to ON. By repeating this procedure, the sound of the buzzer will be restored.

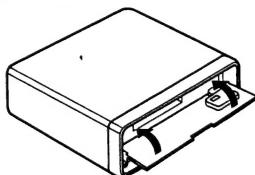
Detaching the Front Panel

1. Press button [1] to open the front panel.
2. While holding down the lock button, pull the front panel toward you.



- Take care not to put pressure on the display or drop the front panel.

3. Close the inner lid.

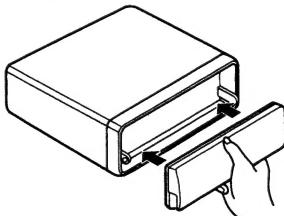


- Always keep the inner lid closed while the front panel is out, otherwise dirt or dust may get into from the cassette slot, causing malfunctions.
- 4. Enclose for safekeeping the front panel that is removed in the supplied protective case.



Replacing the Front Panel

1. Make sure the inner lid is closed.
2. Push the front panel into the main body.



- When replacing the front panel, do not put pressure on the display or control buttons.

3. ADJUSTING VOLUME AND TONE

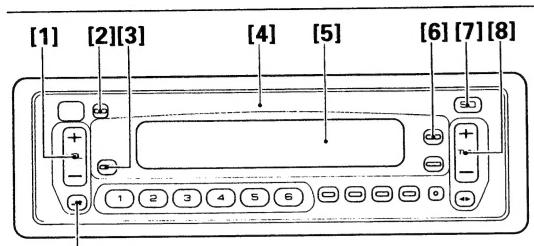


Fig.2

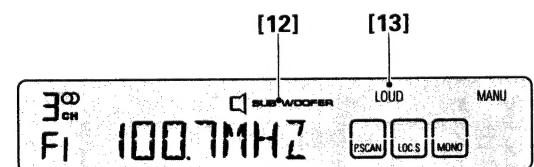


Fig.3

Parts Identification (Fig. 2)

- [1] Volume/Audio adjustment
- [2] Open
- [3] Loudness
- [4] Front panel
- [5] Display
- [6] Illumination switch
- [7] Source selector
- [8] Frequency selector
- [9] Shift
- [10] Cassette slot
- [11] Eject

(Fig. 3)

- [12] Sub-woofer
- [13] Loudness

Switching Power On

Tuner

Press button [7] to switch the tuner power on. Press button [7] again to switch the power off.

Tape

Press button [2] to open the front panel, and load a cassette in through cassette slot [10]. The cassette will play. To eject the cassette, press button [2] to open the front panel and press button [11].

Source Selector

When a cassette is loaded and button [7] is pressed, the source shifts in the order tape → tuner → power off. If this unit is combined with a multi-play CD player sold separately such as CDX-M33, the source shifts in the order multi-play CD player → tape → tuner → power off.

Note:

- None of the operation buttons except button [11] work while the front panel is open. Use the control buttons after shutting the front panel.

Adjusting Audio

Press button [1] to adjust the volume. Each press of button [9] changes the display and the function of button [1] as follows:

Volume → Fader 1 → Fader 2 → Bass → Middle → Treble → Balance

Adjusting Volume

Pressing the (+) side of button [1] increases the volume, while the (-) side decreases it. (Display shows "VOL00" — "VOL30".)

- While driving, keep the volume low enough that you can hear sounds from outside the vehicle.

Adjusting the Fader

This unit has two faders. Fader 1 (displayed as "FAD 1") adjusts this unit's built-in amp's front and rear output.

Fader 2 (displayed as "FAD 2") adjusts the built-in amp's overall output as well as front pre-out and rear pre-out output.

- When combining this unit with a graphic equalizer, the fader adjustment is carried out on the graphic equalizer. For details on how to adjust Fader 1 and Fader 2 in this situation, see "Combining this unit with a graphic equalizer" in the next item.
- When the sub-woofer function is used, the Fader 2 function does not work. (See "Using the Sub-woofer" on the next item.)
- For details on Speakers 1 — 5 as mentioned in the explanation of Fader 1 and Fader 2, see the wiring diagram on the next item.

Fader 1

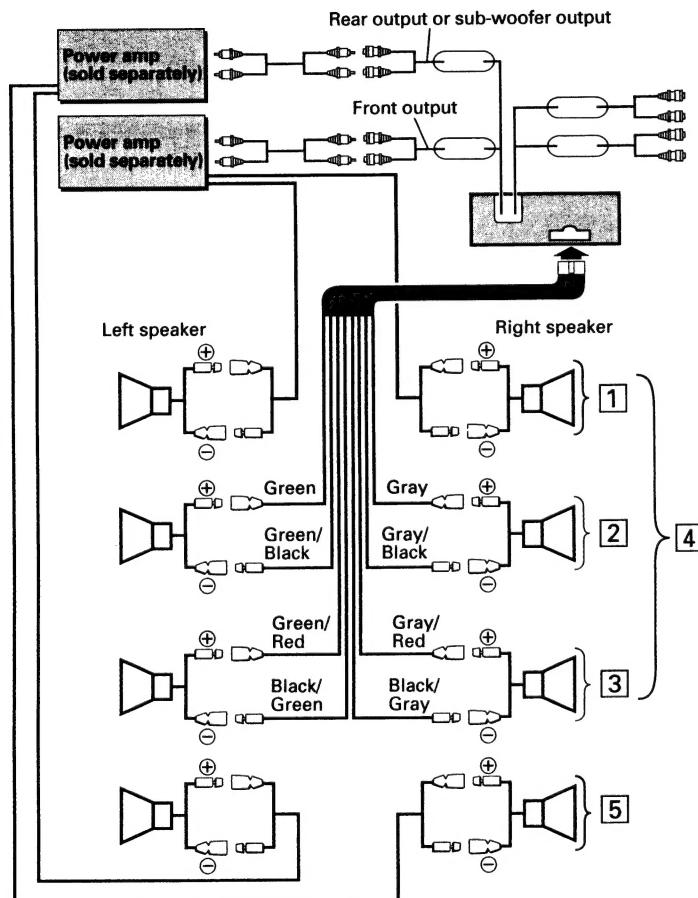
Pressing the (+) side of button [1] decreases the volume from Speaker [3] and pressing the (-) side decreases the volume from Speaker [2]. (Display shows "FAD1 F9" — "FAD1 R9".)

Fader 2

Pressing the (+) side of button [1] decreases the volume from Speaker [5] and pressing the (-) side decreases the volume from Speaker [4]. (Display shows "FAD2 F9" — "FAD2 R9".)

Notes:

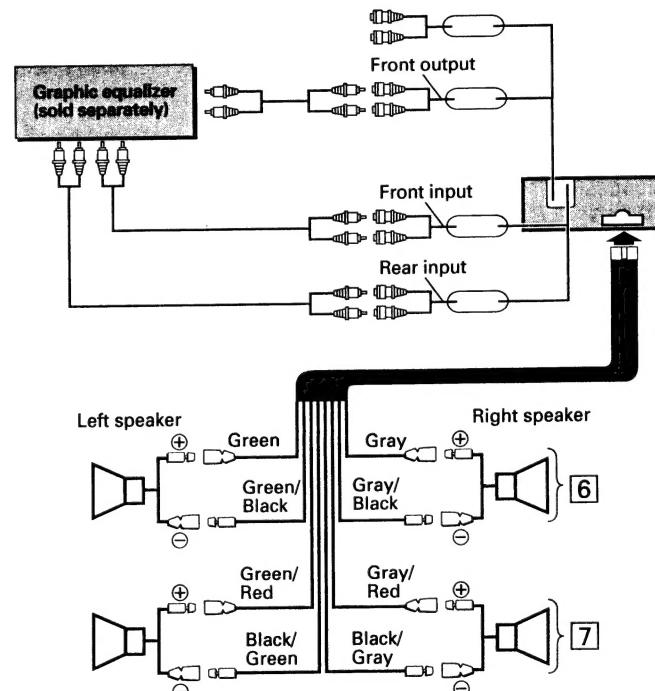
- When either Speaker [2] or Speaker [3] is not connected, set Fader 1 to its center position, "FAD1 0." Adjust the Speaker [4] and Speaker [5] output with Fader 2.
- When Speaker [5] is not connected, set Fader 2 to its center position, "FAD2 0". Adjust the Speaker [2] and Speaker [3] output with Fader 1.



- For details on connecting this unit and a power amplifier, see "Connections" on page 15.

Combining this unit with a graphic equalizer

Set this unit's Fader 1 and Fader 2 to "FAD1 0" and "FAD2 0". Adjust the output from Speaker 6 and Speaker 7 with the graphic equalizer, not with this unit.



- For details on connecting this unit and a graphic equalizer, see "Connections" on page 15.
- When you connect this unit with a graphic equalizer, you must switch the "MAIN IN" switch on the bottom of this unit. Refer to the "Carry out the following before connections and installation" on page 15.

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Adjusting Bass

Pressing the (+) side of button [1] increases bass, while the (-) side decreases bass.
(Display shows "BAS-6" — "BAS +6".)

Adjusting Middle

Pressing the (+) side of button [1] increases middle, while the (-) side decreases middle.
(Display shows "MID-6" — "MID+6".)

Adjusting Treble

Pressing the (+) side of button [1] increases treble, while the (-) side decreases treble.
(Display shows "TRE-6" — "TRE+6".)

Adjusting Balance

Pressing (+) side of button [1] shifts the balance to the left speaker, while the (-) side shifts it to the right speaker.
(Display shows "BAL L9" — "BAL R9".)

- When you're adjusting fader, bass, middle, treble, or balance settings, the indicator will stop at the center setting. About 5 seconds after adjustment has been made, the display returns to its previous state.

Using the Sub-woofer

This unit's rear pre-out output terminals can also be used as sub-woofer output terminals. (For details on wiring, see "Connections" on page 15.) When using these terminals as sub-woofer output terminals, carry out the following operations.

- When the sub-woofer function is used, the Fader 2 function does not work. When button [9] in the previous item is pressed, the display moves to the next step in the sequence: Volume → Fader 1 → Sub-woofer → Bass → Middle → Treble → Balance. (In other words, the sub-woofer display replaces the Fader 2 display.)

Using the sub-woofer function

- Press button [9] repeatedly to switch to the Fader 2 display ("FAD2 F9" — "FAD2 R9").
- When you hold down button [9] for at least 2 seconds, "SUB. WOOFER" [12] lights up and the sub-woofer function comes on. The display switches to the sub-woofer display for about 5 seconds (displaying the frequency and output level "80HZ 0").
- To end the sub-woofer function, press button [9] repeatedly to switch to the sub-woofer display. Holding down button [9] for at least 2 seconds while the sub-woofer is being displayed ends the sub-woofer function.

Frequency and output level adjustment

- Press the button [9] repeatedly to switch to the sub-woofer display. (For about 5 seconds, the display shows the frequency and output level "80HZ 0".)
- While the sub-woofer display is shown, adjust the frequency and output level. Pressing the (+) or (-) side of button [8] raises or lowers the frequency. Pressing the (+) or (-) side of button [1] raises or lowers the output level. The frequency can be set to 50 Hz, 80 Hz, or 120 Hz. The output level can be set within the range from -6 to 6.

Using Source Level Adjuster

You may wish to adjust volume when you have changed the source to radio, tape, or CD or when you have changed the radio band from FM to AM. You can do so on the basis of the volume of FM as follows:

- Use the button [7] to change the source. (In case of radio, change the band to AM.)
- Hold down the button [9] for about 2 seconds, and the display will show you the volume of the source. (Display shows "V-4" — "V+4".)
- Pressing the (+) side of button [1] raises the volume and pressing the (-) side lowers it. About 5 seconds after the completion of the adjustment, the display returns to whatever it was showing before the adjustment.
- No adjustment can be made when an FM station is tuned in.

Using the Loudness Function

Press button [3] and the "LOUD" [13] will appear on the display. This "loudness" function enhances both the high and low ranges of sound to give even more power to output even at low volumes.

Switching Illumination Colour

Pressing button [6] toggles the illumination colour between green and amber.

Regarding the Cellular Telephone Muting

When the audio mute terminal of a cellular telephone is connected to the cellular mute terminal of the unit, the following function becomes active.

When a phone call is received or made on the cellular telephone, the volume is automatically lowered by the unit, and "CALL" is shown on the display.

When a call is ended, the volume returns to the previous level and the previous display is shown again.

- When the volume is lowered by the operation of the cellular telephone muting function ("CALL" is shown on the display), the unit's shift Button [9] and the attenuator button of the remote controller unit are disabled.

4. USING THE RADIO

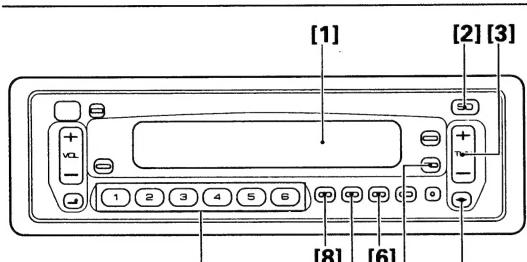


Fig.4

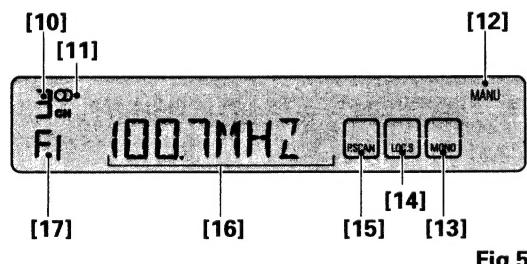


Fig.5

Parts Identification

(Fig. 4)

- [1] Display
- [2] Source Selector
- [3] Tuning/Local Seek Sensitivity/Seek, Manual
- [4] Band
- [5] Best Stations Memory (BSM)
- [6] FM Stereo/Mono
- [7] Local Station
- [8] Preset Scan
- [9] Preset

(Fig. 5)

- [10] Preset Number
- [11] FM Stereo
- [12] Manual
- [13] FM Mono
- [14] Local Station
- [15] Preset Scan
- [16] Frequency
- [17] Band

Listening to the Radio

- Electronic Tuner

Frequency allocation differs depending upon the area. This unit has been designed in accordance with the frequency allocations for North America. Use in other areas may result in improper reception of AM.

1. Press button [2] to switch the radio power on.

Press button [2] to switch the tuner on and off. Operations will be different when the unit is combined with a separately available multi-play CD player (CDX-M33, etc.). For details on "Switching Power ON" refer to the relevant clause, on page 4.

2. Press button [4] to select a band.

F I → F II → F III → R
(FM1) (FM2) (FM3) (AM)

3. Use seek tuning to tune in a frequency.

Ensure that "MANU" [12] is not indicated on the display. (If so, turn it off by simultaneously pressing the (+) and the (-) sides of button [3].) Press either the (+) side or the (-) side of button [3]. When the (+) side is pressed, the tuner will automatically receive high frequencies. When the (-) side is pressed, it will automatically receive low frequencies.

4. Adjust volume and tone (see page 4).

5. Assign the tuned frequency to one of the buttons in Bank [9] (preset memory).

Press and hold down one of the button in Bank [9] for at least 2 seconds. The frequency is assigned to the selected button when the preset number [10] stops flashing on the display. Up to 18 FM stations (6 each for FM1, FM2 and FM3), and 6 AM stations can be assigned to the preset memory buttons in Bank [9].

6. Once a frequency is assigned to a button in Bank [9], you just need to press that button to tune it in. This also causes the number of the button pressed to appear at position [10] on the display.

BSM (Best Stations Memory)

This function automatically locates stronger stations and automatically assigns their frequencies to the buttons in Bank [9], from strongest to weakest. It comes in handy when trying to find local stations while driving.

1. Press button [4] and select a band.
2. Hold down button [5]. After about 2 seconds, a "beep" will sound to signal that the BSM search has started. At this time, "BSM" will flash on the display.
3. The frequency display will return once BSM search is complete, and frequencies are assigned to buttons 1 through 6 in Bank [9].
- At the end of the BSM search, the displayed frequency is that assigned to button "1" of Bank [9].
- If there are fewer than six strong stations in the area, some of the buttons in Bank [9] will not be assigned frequencies, so they will retain any frequencies assigned to them previously.
- BSM search may take as long as 30 seconds in areas where there are few strong stations.
- You can cancel BSM search by pressing button [5] again.

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Preset Scan Tuning

This function lets you automatically monitor the stations assigned to the preset buttons.

1. Press button [8]. The preset scan frame [15] lights up and the preset number [10] blinks. The broadcast stations stored with button [9] that are being received are called out one after another for 8 seconds each.
2. When you hear a station that you like, press button [8] again to cancel preset scan tuning and remain at that station.

Adjusting Seek Sensitivity

The seek tuning function of this tuner lets you select between a local setting for reception of strong stations only, and a DX (distant) setting for reception of weaker stations. The local setting also has four seek tuning sensitivity levels for FM and 2 levels for AM to match local conditions.

Changing the Local Seek Sensitivity

1. Use button [4] to select a band.
2. Hold down the button [7] for more than 2 seconds, and the display will show you the current local seek sensitivity for about 5 seconds.(Example: LOC-2)
3. While the local seek sensitivity remains on the display, press the (+) side of button [3] to increase the sensitivity level, and the (-) side to decrease the level as shown below.
FM : LOC-1 ≡ LOC-2 ≡ LOC-3 ≡ LOC-4
AM:LOC-1 ≡ LOC-2
The LOC-4 setting allows reception of only the strongest stations, while lower settings let you receive progressively weaker stations.

- The display of local seek sensitivity returns to the frequency when about 5 seconds have elapsed after the change of sensitivity.

Switching between Local and DX

Press button [7] to switch between Local and DX (distant) seek tuning. When the frame of local seek [14] is lit, seek tuning is performed with the local seek sensitivity. Otherwise, seek tuning is performed with the DX seek sensitivity.

Manual Tuning

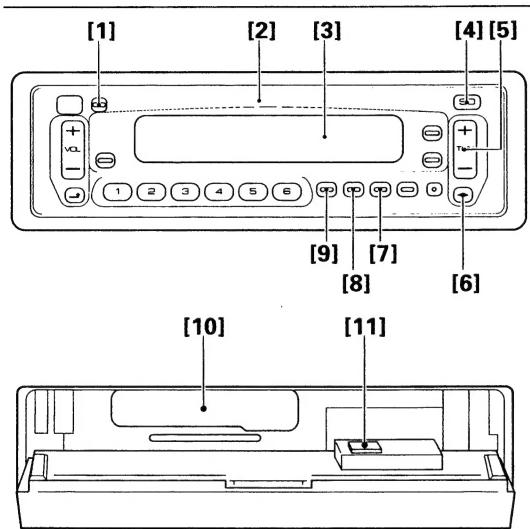
Use manual tuning when stations are too weak to be picked up by seek tuning.

1. Turn on "MANU" [12] by simultaneously pressing the (+) side and the (-) side of button [3].
2. Each press of the (+) side of button [3] increases the frequency in 0.2 MHz steps in the FM band, 10kHz in the AM band. Pressing the (-) side of button [3] decreases the frequency. Holding down either side of button [3] changes the frequency at high speed.

Switching between FM Stereo and Mono

Generally, it is best to allow the "Super Tuner" function to automatically set the optimum listening conditions. "○" [11] turns on during stereo broadcast is in reception. When there is a large amount of noise, you can press button [6] for clearer mono reception (The frame of FM mono [13] turns on).

5. USING THE TAPE DECK



Parts Identification (Fig. 6)

- [1] Open
- [2] Front panel
- [3] Display
- [4] Source selector
- [5] Fast forward, Rewind/Music search
- [6] Direction change/Release
- [7] Repeat
- [8] Dolby B and C NR
- [9] Blank skip
- [10] Cassette slot
- [11] Eject

(Fig. 7)

- [12] Direction
- [13] Metal
- [14] Repeat
- [15] Dolby B and C NR
- [16] Blank skip
- [17] Tape play

About cassette tapes

- Do not use tapes longer than C-90-type (90 min.) cassettes. Longer tapes can interfere with tape transport.
- Storing cassettes in areas directly exposed to sunlight or high temperatures can distort them and subsequently interfere with tape transport.

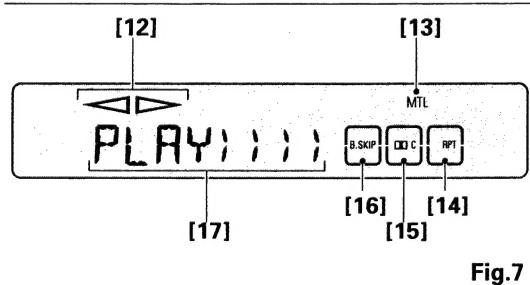


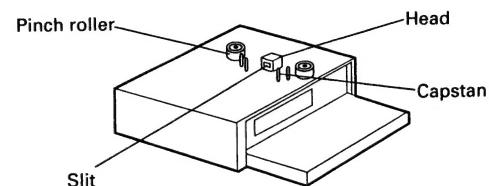
Fig. 7

- Store unused tapes in a tape case where there is no danger of them becoming loose or being exposed to dust.



Cleaning the head

If the playback head becomes dirty, sound quality will suffer. Periodically (once or twice a month) clean the head with a cotton swab soaked with alcohol.



Listening to a tape

1. Press button [1] to open the front panel.
2. Load a cassette in through the cassette slot [10].
The cassette will play.
Tape play [17] and direction [12] appear.
- Do not take out the cassette while it is being loaded. If taken out forcibly, a cassette cannot be loaded later. If a cassette cannot be loaded, hold button [11] depressed and load the cassette again.
3. Close the front panel and adjust volume and tone (see page 4).
4. To stop play halfway, press button [4] to switch the function off.
To restart play, press button [4] some times until PLAY [17] appears on the display. The tape begins playing at the position where it stopped.
5. To eject the cassette, press button [1] to open the front panel and press button [11].
Power is automatically turned off when the cassette tape has not been set within a few seconds. When this happens, remove the tape by pressing the button [11] because of a possible trouble with the tape.
- A loose or warped label on a cassette tape may interfere with the eject mechanism of the unit or cause the cassette to become jammed in the unit. Avoid using such tapes or remove such labels from the cassette before attempting use.

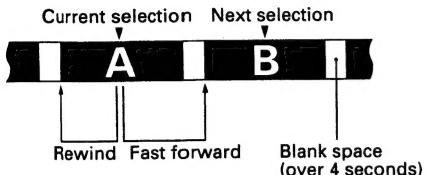
Changing Program

Press the button [6] to change the side of tape from A to B or vice versa.

Using Fast Forward and Rewind

- To fast forward tape, press the (+) side of the button [5].
(Display shows "FF".)
To rewind tape, press the (-) side.
(Display shows "REW".)
- To release the fast forward or rewind function, press the button [6].

Using Music Search



- To repeat the current selection (A), press the (-) side of the button [5] two consecutive times.
(Display shows "R-MS".)
To hear the following piece of music (B) rather than continue the current selection, press the (+) side of the button [5] two consecutive times.
(Display shows "F-MS".)
Pressing the button [5] three consecutive times makes the normal sequence of playing resume.
- To release the music search function, press the button [6].

The following errors will cause the music search function to operate improperly, even though the unit is not malfunctioning.

- Unrecorded blank portion between selection is less than 4 seconds — the blank portion cannot be detected by the unit.
- Pauses in recorded conversations are longer than 4 seconds — the unit reads these as blanks between selections.
- Portions are recorded at very low volume for more than 4 seconds — the unit reads these as blanks between selections.

Dolby B and C NR

Press button [8] to listen to a cassette recorded using the Dolby NR system. Each press of button [8] shifts the Dolby NR mode as follows:

Dolby B NR ("DOLBY" [15] appears) — Dolby C NR ("DOLBY" [15] appears) — Dolby NR off.

- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol DOLBY are trademarks of Dolby Laboratories Licensing Corporation.

• To release the fast forward or rewind function, press the button [6].

Auto Tape Selector

When a cassette tape is inserted, the automatic tape selector determines the tape type, and switches between 70 µs and 120 µs equalization. When it is a metal or chrome tape, "MTL" [13] comes on. When it is a normal tape, nothing comes on.

Using the blank skip function

Automatically carries out fast forward to the start of the next selection when there is a blank area of 10 seconds or more between selections.

- Press button [9] and frame [16] will light. The unit will now carry out fast forward to the start of the next selection when there is a blank area of 10 seconds or more between selections.
- To release the blank skip function, press button [9] again.

Using the Music Repeat Function

Lets you listen to the same selection repeatedly.

- When you want to listen to the same selection repeatedly, press button [7] and frame [14] will light.
- To release the music repeat function, press button [7] again or press button [6].

6. USING THE MULTI-PLAY CD PLAYER

Precautions When Using the Multi-Play CD Control

- This model can be used as controller when an optionally available multi-play CD player (e.g., CDX-M33) is included in the system. Programmed play does not operate when used with the multi-play CD player CDX-M70 or CDX-M100.
- See pages 11 through 14 for details on operation procedures.
- The Owner's Manual for the multi-play CD player does not contain an explanation of the CD controls for this unit. Read this Owner's Manual for details on proper operation and keep it handy for later reference.
- Immediately after the multi-play CD player is connected to the system, it may not operate properly (i.e. the system will not enter the multi-play CD player mode when you press the source selector button). In this case, press the clear button of the main unit and the clear button of the multi-play CD player, and attempt operation again.

Listening to the Compact Disc

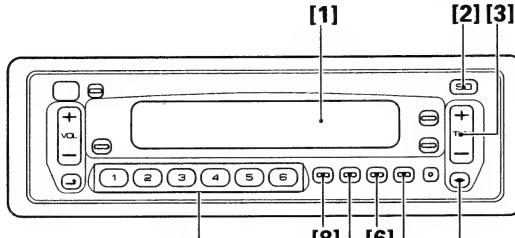


Fig. 8

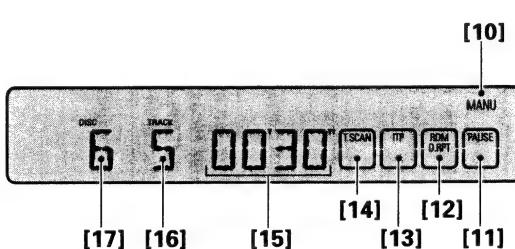


Fig. 9

Parts Identification

(Fig. 8)

- [1] Display
- [2] Source Selector
- [3] Track Number Search/Fast Forward, Reverse
- [4] Program Clear
- [5] Pause
- [6] Mode
- [7] ITP (Instant Track Program)
- [8] Highlight Scan
- [9] Disc Number Search

(Fig. 9)

- [10] Manual
- [11] Pause
- [12] Music Repeat/Random Play/Disc Repeat
- [13] ITP (Instant Track Program)
- [14] Highlight Scan
- [15] Play Time
- [16] Track Number
- [17] Disc Number

1. Press button [2] to change the display to the Multi-Play CD Player mode and to begin disc play.

Disc number [17], track number [16] and play time [15] will light. Each press of button [2] changes the mode as follows:
Multi-Play CD Player → Tape → Tuner → OFF

2. Use the Disc Number Search function to select a disc.

At the [9] button, press the disc number of the disc you wish to play. When the button is pressed, the selected disc number is displayed at [17] on the display and the playing starts.

- If pressing the [9] button has no effect (the pressed number is not displayed at [17]), check if there is a disc at that number.

3. Adjust volume and tone. (See page 4.)

4. To stop disc play, press button [2].

If you switch to the Multi-Play CD Player mode again, the normal play resumes from about where it stopped.

- If you stopped operating a Multi-Play CD Player CDX-M100 in the middle of music and then restarted, the player resumes playing from the very beginning of the selection with which you stopped.

Note:

- It takes about 30 seconds from setting the magazine in the multi-CD player till the start of CD playback. (During this time, "READY" blinks on the display.)
This does not indicate a problem; it is just for verifying there a disc in the magazine.
- After you press a Button in Bank [9], it may take some time before play begins due to the time necessary to load and set the disc in the mechanism.
- The display counts down the number of seconds between tracks if the spacing is rather large (-02, -01).

Error Mode

Should an abnormality occur — for example, Multi-Play CD Player cannot be operated, or the music stops during CD playback — the main unit will indicate an error mode.

While it the unit is in error mode, a number will be displayed indicating the cause of the error, so please check the items listed below. If you cannot fix the problem after checking the cause of the error, please contact your dealer or your nearest Pioneer service center.

Note:

When using the Multi-Play CD Player, CDX-M100, CDX-M70, CDX-M50 and CDX-M40, an error will be displayed only in the form of "ERROR-00", without the number which indicated the cause of the error. When this display appears, please check items 11, 12, 14, or 30 listed below.

HEAT indicator

To prevent deterioration in the semi-conductor laser from overheating, playback of a CD will stop when the temperature surrounding the Multi-Play CD Player rise during play.

When this occurs, "HEAT" will be indicated on the display. Please wait until the temperature drops.

- This function refers to the Multi-Play CD Player CDX-M100. It does not refer to other Multi-Play CD Players.

| Display | Cause | Treatment |
|------------------------------|--|--|
| 11, 12 | Dirt or a scratch on the disc stops the laser beam from being able to focus. | Wipe the dirt off the disc. Exchange the disc if it is scratched. |
| | The disc has been inserted upside down. | Confirm that the disc has been inserted right side up. |
| 14 | The disc has been inserted upside down. | Confirm that the disc has been inserted right side up. |
| | An unrecorded one-time-recordable compact disc (CD-R) is being used. | When you use a CD-R, load one that has been recorded on. |
| 30 | Dirt or a scratch on the disc hinders the track number search function. | Wipe the dirt off the disc. Exchange the disc if it is scratched. |
| 80 | An empty magazine is loaded in the multi-play CD player. | Insert a disc in the magazine. |
| 10, 12, 50, 60, 70, A0 | Electrical or mechanical system fault. | Turn the car ignition switch OFF, then ON again, or change to other sources except CD playback , and then to CD playback again. If the error indication does not disappear, contact your dealer or your nearest Pioneer service station. |

- When error numbers not mentioned above are indicated, refer to the owner's manual accompanying the multi-play CD player.

Track Number Search

The desired track on the disc currently being played can be selected by track (or song) number.

1. Ensure that "MANU" [10] is not indicated on the display. If so, turn it off by simultaneously pressing the (+) side and the (-) side of button [3].
2. Use the button [3] to select a track. Pressing the (+) side increases the track number [16], and pressing the (-) side decreases it. Holding the button down continuously increases or decreases the track number.

Using Highlight Scan

Highlight Scan is designed to enable you to conveniently scan all pieces of music contained in the disc by playing 10 seconds each at your designated point of time after the start of the music. The starting time of play is set at one minute in factory. Therefore, the Highlight Scan begins 1 minute after the start unless you designate it otherwise.

When you do not want to change the factory-set time:

- When used in conjunction with the old type Multi-Play CD Players [CDX-M70] or [CDX-M100], the place where playback starts in Highlight Scan is fixed as the start of each track. Also, it is not possible to adjust this time setting.

1. Pressing Button [8] turns on the frame of Highlight Scan [14].
2. The contained pieces of music will be played in sequence for 10 seconds each 1 minute after the beginning.
3. Press Button [8] again when your selected piece comes, and it will continue to play. At this point, the Highlight Scan discontinues to operate.
- The previous function automatically resumes when a piece of music with which Highlight Scan began returns.

Changing the Starting Time of Highlight Scan

When you want to set the starting time of the Highlight Scan to 30 seconds:

1. Indicate "MANU" [10] on the display by simultaneously pressing the (+) side and the (-) side of button [3].
2. Keep pressing either (+) or (-) side of Button [3] until the numerals reaches 30.
3. Pressing button [8] for 2 or more seconds, turns on the frame of Highlight Scan [14].

Highlight Scan will begin 30 seconds after the start of the next piece of music.

- The starting time of Highlight Scan can be designated at ten or tens of seconds only. A tenth or tenths of seconds can be disregarded.
- If a piece of music ends before your designated point of time at which Highlight Scan starts, the scanning is performed for its beginning 10 seconds.
- If a piece of music lasts less than 10 seconds, so does the Highlight Scan.
- You may wish to change the starting time longer without suspending the function. You may do so, however, only to a relatively long-playing piece of music because, as a matter of course, the time cannot be set so as to come after the end of the music.

Using Disc Repeat, Music Repeat and Random Play

Each press of button [6] causes the mode to change as follows:

Music Repeat ("RPT" and the frame at [12] turn on) → Random Play ("RDM" and the frame at [12] turn on) → Normal.

If button [6] is pressed for 2 or more seconds, the mode changes to Disc Repeat ("D.RPT" and the frame at [12] turn on).

Music Repeat

1. To repeat the music you are listening to, select the repeat mode.
2. To cancel Music Repeat, press button [6] to turn off frame [12].
- When Disc Repeat or Music Repeat are not operational, the compact discs contained in the magazine will play sequentially from beginning to end, and then start from disc 1 again.

Random Play

1. To play music randomly, select the random play mode. Once the current track has been played, the microprocessor will randomly select the next and subsequent tracks.
2. To cancel random play, press button [6] to turn off frame [12].
- Since selections are played in random order, the same selection may be played twice in succession.
- When a Multi-Play CD Player CDX-M100 is used, random selection is made from a disc being played.

Disc Repeat

The Disc Repeat function causes the same disc to play repeatedly.

1. Press button [6] for 2 seconds or more while the desired disc is being played. The mode will change to Disc Repeat mode.
2. To cancel Disc Repeat, again, press button [6] for 2 seconds or more and turn off the frame at [12].
- Even during Disc Repeat, the mode will change each time button [6] is pressed, in the following order:
Music Repeat → Random Play → Normal
- When Disc Repeat or Music Repeat are not operational, the compact discs contained in the magazine will play sequentially from beginning to end, and then start from disc 1 again.

Using Fast Forward and Reverse

1. Turn on "MANU" [10], by simultaneously pressing the (+) and the (-) sides of button [3].
2. Press the (+) side of button [3] for fast forward, and the (-) side for reverse.
- Sound is output during fast forward and reverse operations.

Pausing

1. Press button [5] to pause during disc playback ("PAUSE" and the frame at [11] appears).
2. Press button [5] again to release pause.

Note:

- When connected to a CDX-M50 some functions may not operate correctly. For example, when operating the pause function, the music will pause slightly ahead of the point at which the function was activated.
- The pause function does not operate at all if this unit is connected with the CDX-M70 or the CDX-M100.

Using Program Play

This function lets you program the play sequence of all of the tracks contained on the compact discs loaded in the magazine.

- The ITP function will not operate when connected to either the CDX-M70 or CDX-M100.
- Up to 32 selections can be programmed for a single magazine.
- Up to 16 different magazines (max. 32 selections per magazine) can be programmed individually. If you program more than 16 magazines, old programs are automatically replaced by new ones.
- Automatic Magazine Program Selection (AMPS) retrieves the right program from the memory automatically, as soon as a preprogrammed magazine is loaded. Preprogrammed magazines are identified using the CD in the tray 1 of the magazine. Therefore be sure that tray 1 contains a disc.

Programming

1. While a disc is playing, select the desired disc and track you want to program.
2. Press the ITP button [7] memorize the track being played.
(Display shows "P-01" — "P-32".)
3. Procedures 1 and 2 above can be repeated until a maximum of 32 steps are programmed.
- If the 33rd step is selected, the "FULL" display will appear, indicating that no more selections can be programmed.
- When there are already a number of selections in the memory, the new selection will be added to the last step.

Playing back the program

1. If the ITP button [7] is pressed for about 2 seconds during normal playback, then program playback will start.
(Frame [13] lights up and the program step number "PP01" — "PP32" is displayed.)
2. Press the ITP button [7] again to cancel program play.
 - Pressing button [3] during programmed play makes it possible search for a specific step number from among the programmed selections.
 - Program play returns to the first step in the programmed sequence when it reaches the end of the program.
 - When playing a magazine that has no program recorded, "EMPTY" will be displayed for approximately 3 seconds.

Erasing the Program

It is possible to erase one or all selections of the program in the magazine being played.

To erase a single selection:

1. Press the (+) or (-) side of button [3] during programmed play, and search for the specific step you wish to erase.
2. Press button [4] for at least 2 seconds and the selection being played will be erased.
- After the particular track has been erased, the tracks in the next position move from down up one notch in the order from the previous position.

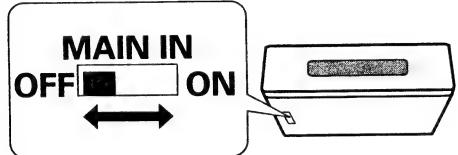
To erase the entire program:

While a disc is playing, hold down button [4] for at least 2 seconds. All the programs in the magazine being played will be erased.
(Display shows "CLEAR".)

Carry out the following before connections and installation

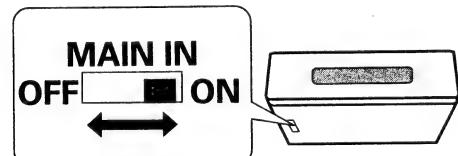
When not connecting a graphic equalizer to this unit

Make sure that the MAIN-IN switch on the bottom of this unit is OFF. This unit's audio is not output if this switch is ON, so switch to OFF.



When connecting a graphic equalizer to this unit

Make sure that the MAIN-IN switch on the bottom of this unit is ON. If you forget to switch to ON, the graphic equalizer will not work correctly.



Connections

Note:

- This unit is only for cars with 12V batteries (negative grounded). Carefully check the battery voltage before installing this unit in a truck or bus.
- To avoid shorts in the electrical system, be sure to disconnect the battery \ominus cable before beginning installation.
- After completing installation and wiring, double check that there are no mistakes. Re-install any parts removed from the car during installation, then connect the battery negative terminal.
- When wiring cords, fasten them with clamps, adhesive tape, or the like. Also, to protect the insulation of cords, always protect them with tape or the like where they touch metal sections.
- Wire and fasten cords in such a way that they are not caught in the transmission shift lever, parking brake, seat rails, and other moving parts. Also, avoid hot locations such as the outlets of heaters. A cord with its insulation cut by moving parts or melted by heat can short to the body of the car, which is dangerous!
- Do not wire Orange leads (for constant-feed power supply) by cutting a hole into the engine compartment and connecting directly to the battery.
- Do not cut cords to shorten them. This is dangerous because it may prevent the protection circuit from operating correctly.
- Do not cut into the insulation of this unit's power cord to take out power for another unit! This is dangerous because it can overload and overheat the power cord.
- Replace the fuses only with the types stipulated on the fuse holder.
- Cover unused terminals with tape to prevent electrical shorts.
- Refer to the owner's manual for details on connecting the various cords of the power amp and other units, then make connections correctly.
- Since a unique BPTL circuit is employed, never wire so the speaker leads are directly grounded or the left and right speaker \ominus leads are common.
- Speakers connected to this unit must be high-power type possessing maximum input of at least 30W and impedance of 4 to 8 ohms. Connecting speakers with output and/or impedance values other than those noted here can damage the speakers.



ACC position

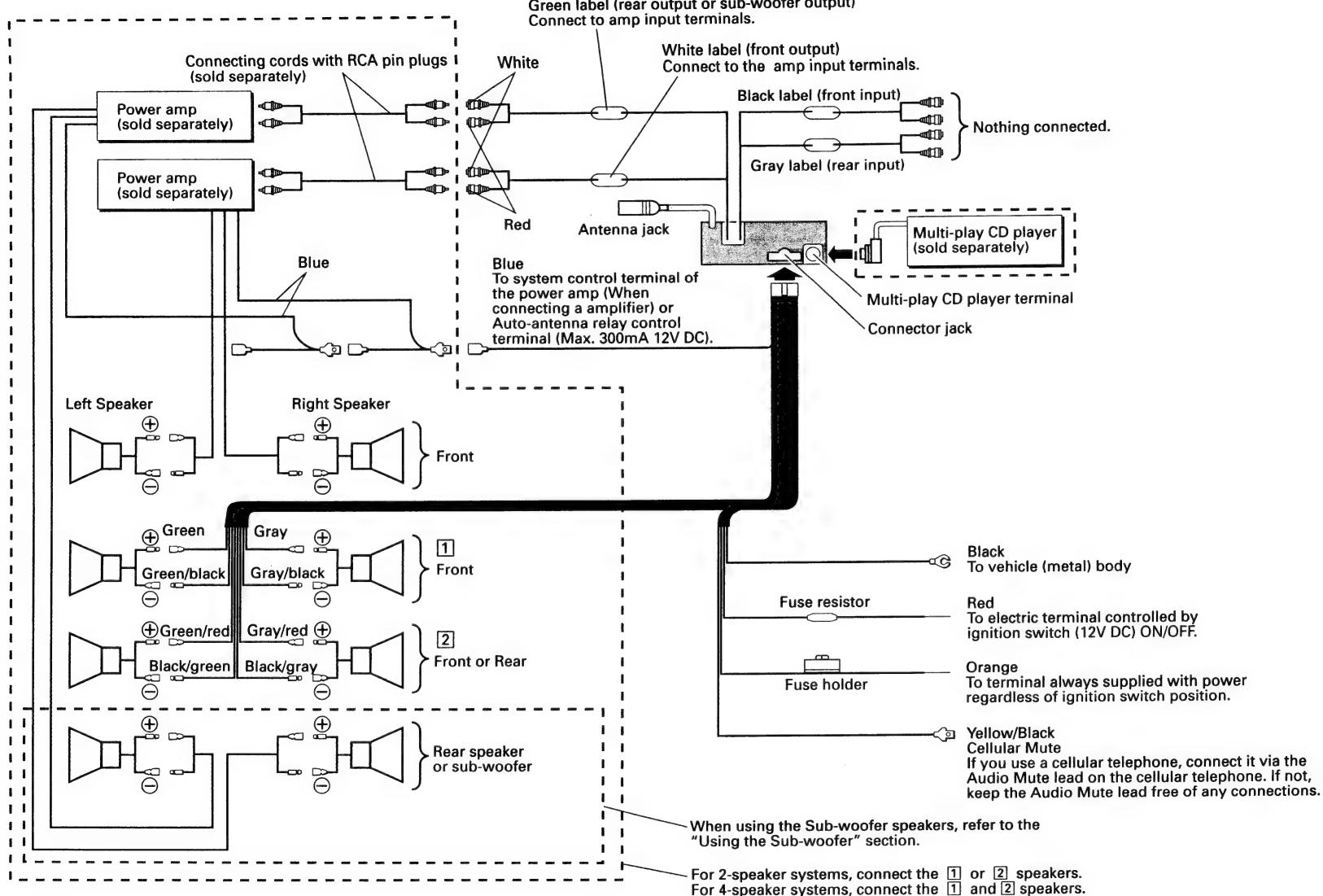


No ACC position

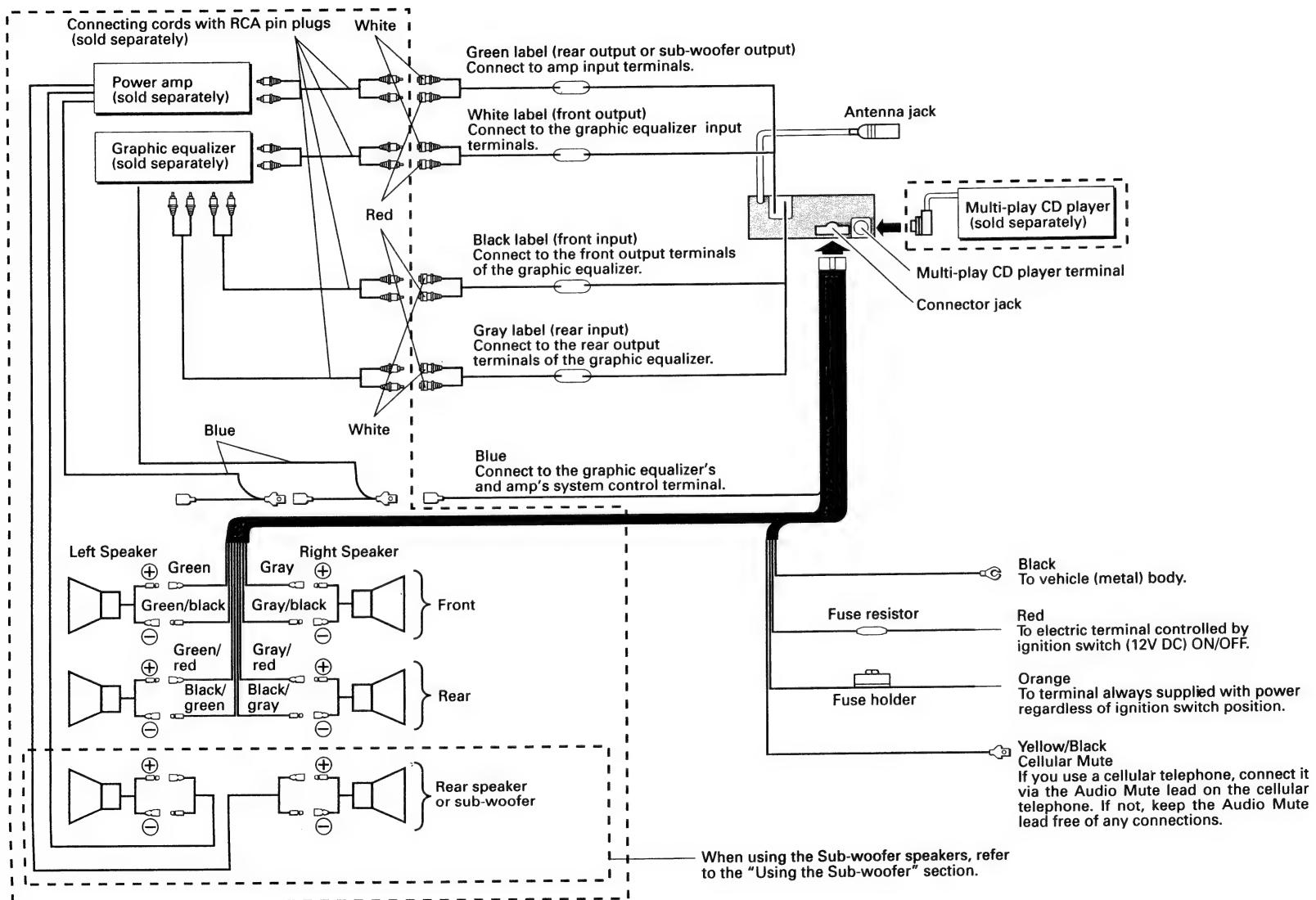
Fig. 10

Fig. 11

●Speaker system



●Speaker + graphic equalizer



8. USING THE CLOCK DISPLAY

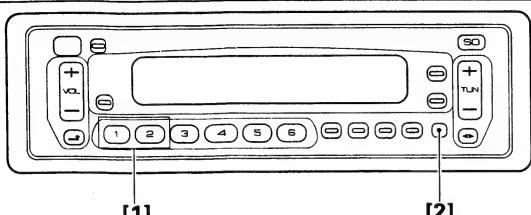


Fig. 12

Parts Identification (Fig. 12)

- [1] 1 button: hour adjustment
- [1] 2 button: minute adjustment
- [2] Clock

Displaying the Time

The clock is displayed when button [2] is pressed.
Press button [2] again to switch off the clock display.

- The clock display can be used only when the main unit is in operation.
- When the clock is being displayed, pressing any other button will end the clock display. The clock will be displayed again about 25 seconds after the last button is pressed.

Adjusting the Time

Adjusting Hour

While holding down button [2], press button 1 of the buttons shown on [1], to adjust the hour setting. Each time button 1 is pressed, the hour advances by one hour. Holding down button 1 advances the hour at high speed.

Adjusting the Minutes

While holding down button [2], press button 2 of the buttons shown on [1] to adjust the minute setting. Each time button 2 is pressed, the minute advances by one minute. Holding down button 2 advances the minute at high speed.

9. DISASSEMBLY

●Removing the Case

- 1.Remove the two screws.
- 2.Insert and turn pair of tweezers to remove the case.

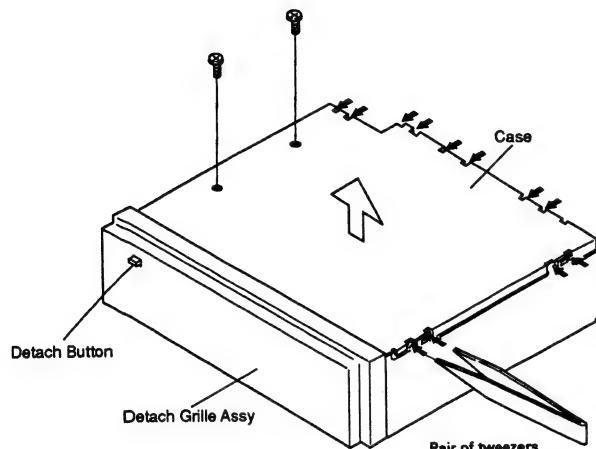


Fig.13

●Removing the Panel Assy

- 1.Remove the two screws, and disconnect the two connectors.
- 2.Disengage the stoppers at four locations indicated by arrows.
- 3.Remove the panel assy.

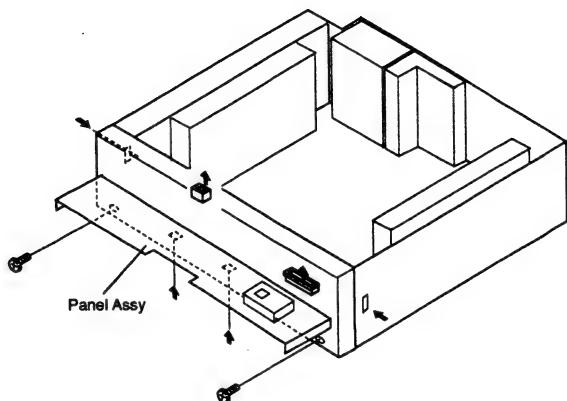


Fig.15

●Removing the Cassette Mechanism Module

- 1.Remove the four screws.
- 2.Disconnect the connector of deck unit.
- 3.Remove the cassette mechanism module.

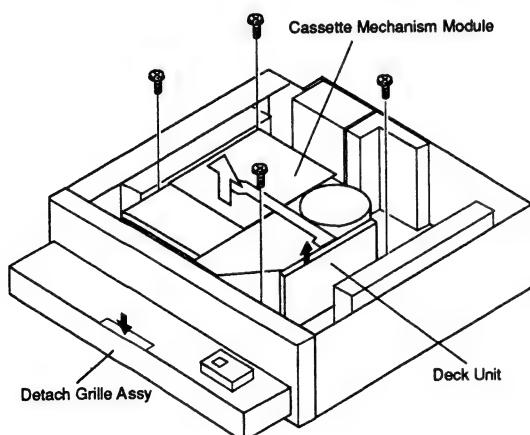


Fig.14

●Removing the Tuner Amp Unit

- 1.Remove the seven screws.
- 2.Remove the screw A and then remove the holder.
- 3.Unbend the tabs at two locations indicated by arrows until straight.
- 4.Raise up on tuner amp unit to remove it from chassis unit.

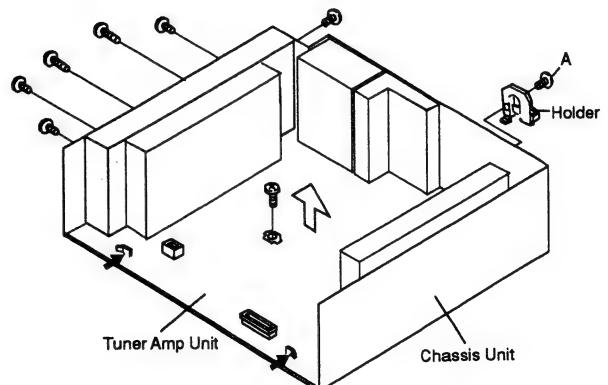


Fig.16

●Removing the Detach Grille Assy

- 1.Press the detach button.(Fig.13)
- 2.Press the button indicated by arrow and then remove the detach grille assy. (Fig.14)

●Removing the Cover Unit

- 1.Remove the three screws.
- 2.Disengage the stoppers at four locations indicated by arrows.
- 3.Remove the cover unit.

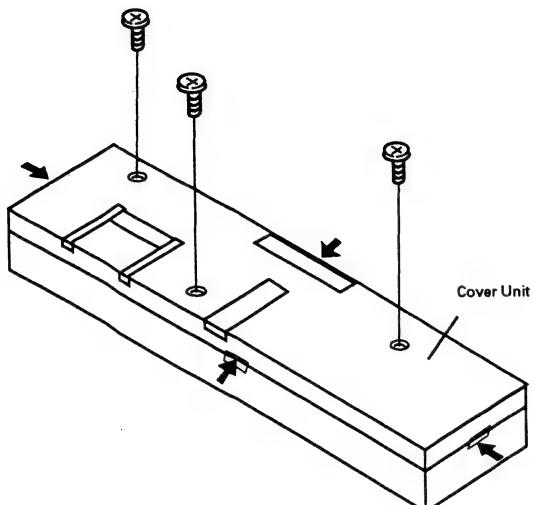


Fig.17

●Removing the Key Board Unit

- 1.Remove the three screws.
- 2.Remove the key board unit.

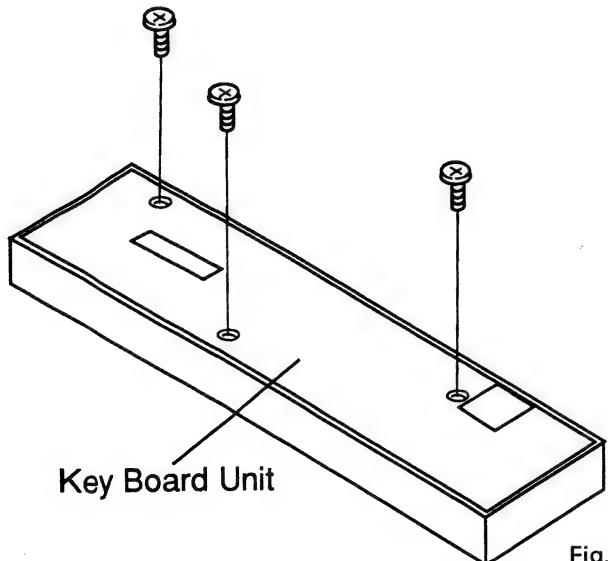
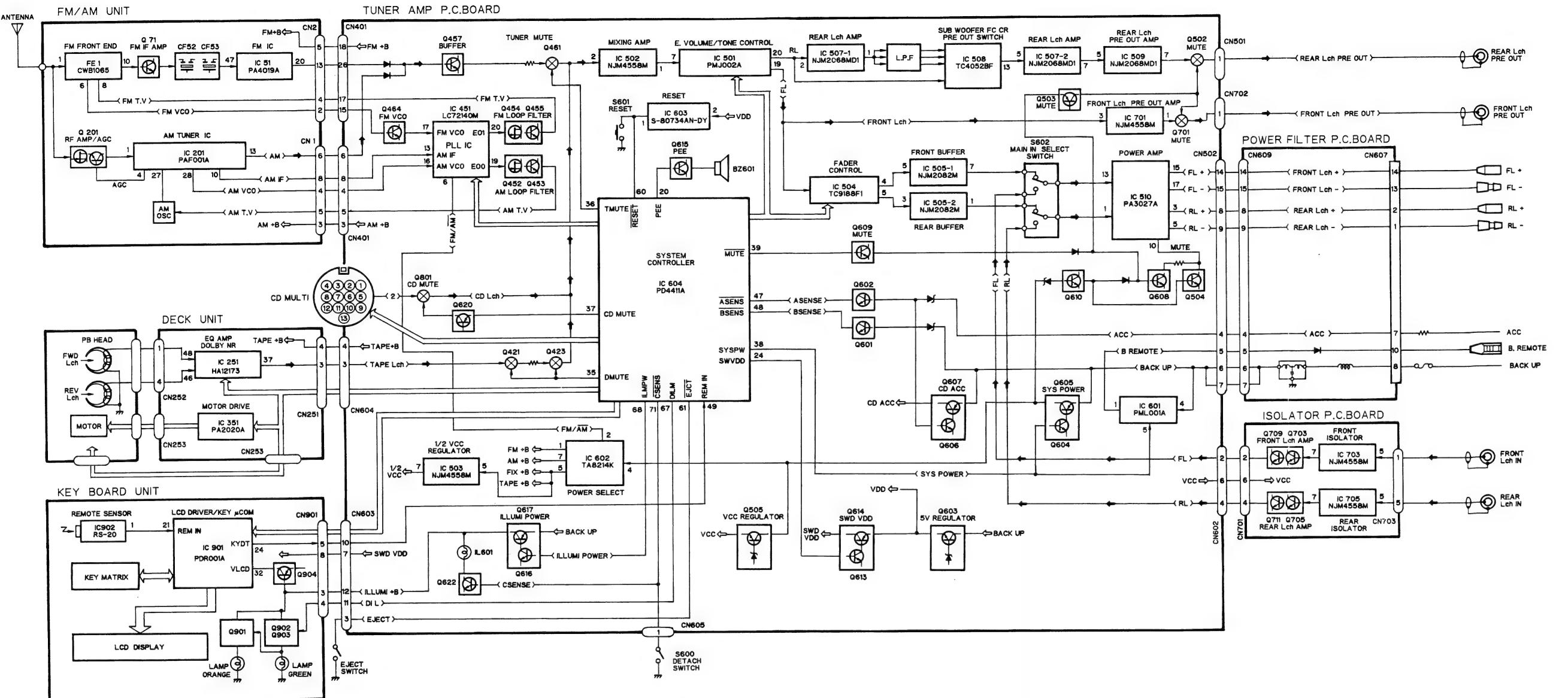


Fig.18

10. BLOCK DIAGRAM

●KEH-M780/US

A



A

B

C

D

Fig. 19

11. ADJUSTMENT

●Test Mode

Test mode is mainly used in adjustment of CD multi-players.

●Switching to test mode

- 1.Turn off the Back-up and ACC off.
- 2.Discharge VDD.
- 3.Turn the Back-up and ACC on while pressing the 4 and 6 keys together.

●Canceling test mode

While pressing the CD multi-player clear button, switch this unit back-up and ACC off.

●Key functions during test mode

The CD multi-player, deck, and tuner are selected by the SOURCE button.

a) CD multi-player

| key | Function |
|-------------------|-----------------------------|
| ITPCLR/DIR/BAND | Regulator ON/OFF |
| AUTO/MANU(FF+REV) | Carriage/Tracking switching |
| FF | FWD kick |
| REV | REV kick |
| F1(TSCAN) | Tracking close |
| F3 | Tracking open |
| F2 | Focus close |
| DISC1-DISC6 | DISC Change |

b) Deck and tuner

No corresponding function. Normal operation executed.

●Flow Chart

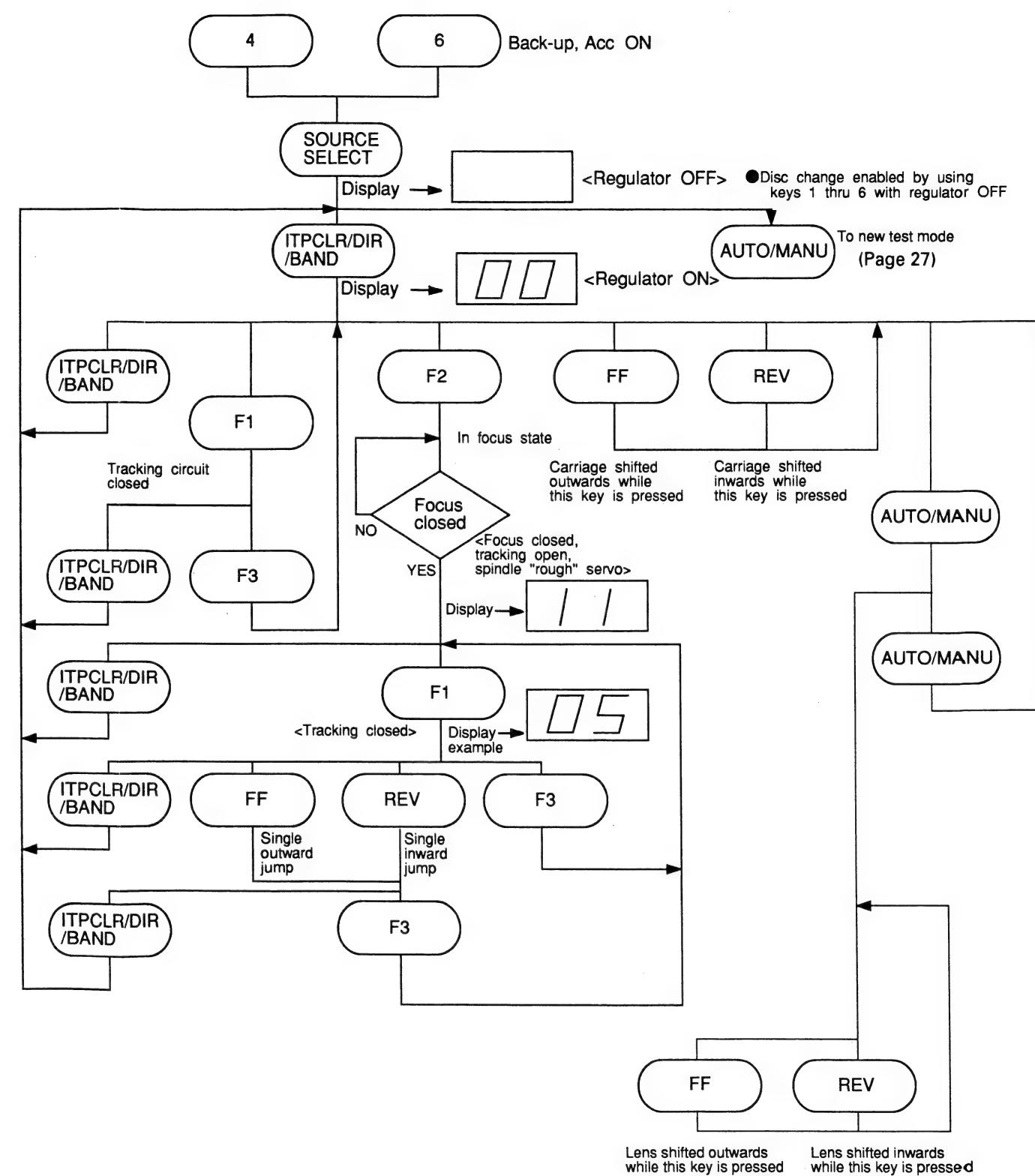
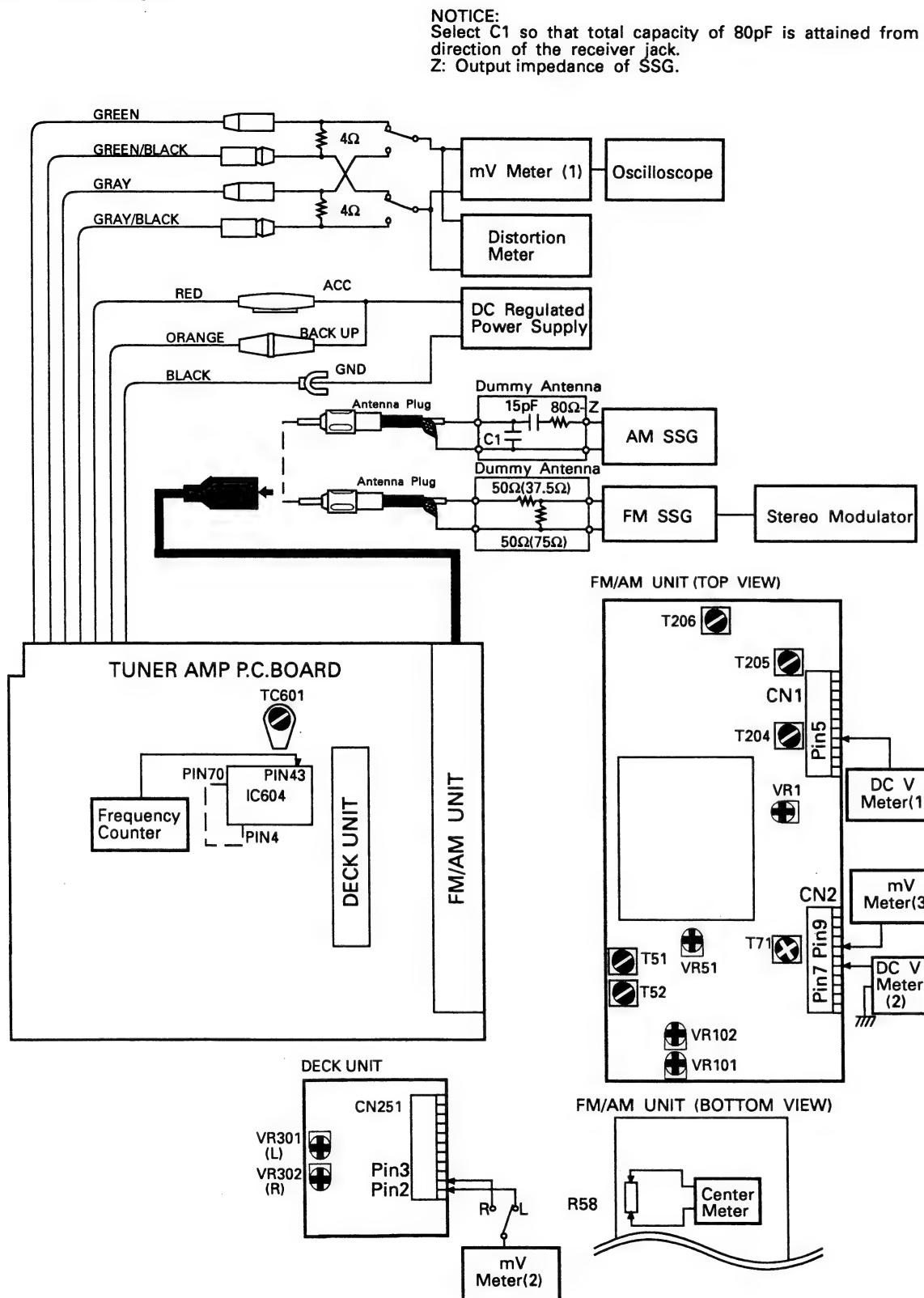


Fig. 20

● Connection Diagram



FM ADJUSTMENT ※ Stereo MOD.: 1kHz, L+R=90%, Pilot=10%

| | No. | FM SSG(400Hz, 100%) | | Displayed Frequency (MHz) | Adjusting Point | Adjustment Method (Switch Position) |
|-----------|-----|--|--------------------|---------------------------|-----------------|-------------------------------------|
| | | Frequency (MHz) | Level (dB μ V) | | | |
| IF | 1 | 98.095 | 60 | 98.1 | T51 | Center Meter:0 |
| | 2 | 98.095 | 60 | 98.1 | T52 | Distortion Meter:Minimum |
| | 3 | Repeat No.1—2 alternately so that the center meter indicates the 0 output and distortion meter indicates minimum output. | | | | |
| IFT | 1 | 98.1 | 60 | 98.1 | T71 | mV Meter(3):Minimum |
| Soft Mute | 1 | 98.1 | 60 | 98.1 | — | mV Meter(1): A dB |
| ARC | 1 | 98.1※ | 33 | 98.1 | VR102 | mV Meter(1): A-3 dB |
| SD | 1 | 98.1※ | 15 | 98.1 | VR101 | mV Meter(1):Separation 5 dB |
| LOCH | 1 | 98.1※ | 53 | 98.1 | VR51 | DC V Meter(2):Approx. 5V |
| | | | | | VR1 | DC V Meter(2):Approx. 5V |

AM ADJUSTMENT *:ES model when tuning step at 9kHz.

| | No. | AM SSG(400Hz, 30%) | | Displayed Frequency (kHz) | Adjusting Point | Adjustment Method (Switch Position) |
|--------------|-----|--------------------|--------------------|---------------------------|---------------------|---|
| | | Frequency (kHz) | Level (dB μ V) | | | |
| Tun-ing Volt | 1 | — | — | 1,710 *(1,602) | — | Verify that DC V Meter (1) is less than 6.5V. |
| | 2 | — | — | 530 *(531) | — | Verify that DC V Meter (1) is more than 2.0V. |
| IF | 1 | 1,000 *(999) | 15 | 1,000 *(999) | T204, T205, T206 | mV Meter(1):Maximum |

CLOCK ADJUSTMENT

| No. | Adjusting Point | Adjustment Method (Switch Position) |
|-----|-----------------|---|
| 1 | | Pin 70(TEST) of IC604 connect to pin 4(VDD) of IC604. |
| 2 | TC601 | Frequency Counter:1.048576MHz±2Hz |

DOLBY NR ADJUSTMENT

| No. | Cassette Tape | Adjusting Point | Adjustment Method (Switch Position) |
|-----|--------------------------|-----------------------|---|
| 1 | NCT-150(400Hz, 200nwb/m) | VR301(Lch) VR302(Rch) | mV Meter(2): -8.24dBm±1dB (300mV) (DOLBY NR Switch:OFF) |

Fig. 21

●New Test Mode

The CD, either single or multiple, plays in the normal mode. After being set up, it will display FOK (focus), LOCK (spindle), subcode, sound skip, protection against a mechanical error or the like, occurrence of an error, cause and time of an expiry, if any, (and disc number in the multi-mode).

During the setup, the CD software operation status (internal RAM and C-point) is displayed.

The software on the head unit side does not involve any special problem but runs normally.

(1) How to Put in the NEW TEST Mode

See the test mode flow chart page 24.

(2) Relations of keys between TEST and NEW TEST Modes.

| P-BUS Commands | Keys | Test Mode Regulator OFF | Regulator ON | New Test Mode Play in progress | New Test Mode Error Protection] Talking place |
|----------------|-----------------|----------------------------|--------------------|-----------------------------------|---|
| B0 | ITPCL/DIR /BAND | Regulator ON | Regulator OFF | (REL/CLR) | Time of occurrence] Cause of error Selected |
| B1 | FF | — | FWD-KICK | FF | — |
| B2 | REV | — | REV-KICK | REV | — |
| B3 | F•1 | — | TRACKING CLOSE | F•1 | — |
| B4 | F•3 | — | TRACKING OPEN | F•3 | — |
| B5 | F•2 | — | FOCUS CLOSE | F•2 | — |
| B6 | — | — | FOCUS OPEN | — | — |
| B7 | — | — | Jump-OFF | — | — |
| B8 | FF REV | To new Test Mode | Jump-Mode selected | FF REV | Occurrence T.No] Time of occurrence Selected |

Operations, such as EJECT, CD ON/OFF, etc. are to be performed normally

(3) Error Cause (Error Number) Code

| Error Code | Classification | Mode | Description | Cause/Detail |
|------------|----------------|------|----------------------------|--|
| 40 | ELECTRIC | PLAY | FOK=L100ms | Put out of focus Scar, Stain, Vibration, Servo defect, etc.... |
| 41 | ELECTRIC | PLAY | LOCK=L100ms | Spindle unlocked |
| 42 | ELECTRIC | PLAY | Subcode unacceptable 500ms | Subcode fails to read |
| 43 | ELECTRIC | PLAY | Sound skipped | Last address memory operated |

*The error code is identical with those in the normal mode.

(4) Indicating an Operation Status During Setup

| Status No. | Description | Protection operation |
|------------|---|--|
| 01 | Carriage home mode started | None |
| 02 | Carriage moving on the internal circumference | 10-second time out |
| 03 | Carriage moving on the external circumference | 10-second time out |
| 11 | Setup started | None |
| 12 | Spindle turn/Focus search started | None |
| 13 | Waiting for focus closing | Failure to focus closing |
| 14 | Spindle kicked and focus checked | Out of focus |
| 15 | Tracking closed and focus checked | Out of focus |
| 17 | Carriage closed and focus checked | Out of focus |
| 18 | Lock subcode] Waiting | Failure to lock, Subcode failed to read out of focus |
| 19 | End | None |

(5) Example of 7-segment Display.

(a) SET UP in progress

TRACK MIN SEC
 11 11 11 While in the TEST MODE, a status number is indicated in TNO, MIN and SEC.
 TRACK
 11
 MIN SEC
 11 11

(b) Operation (PLAY, SEARCH, etc.) in progress perfectly identical with that in the multi mode.

(c) Protection/Error upon occurrence

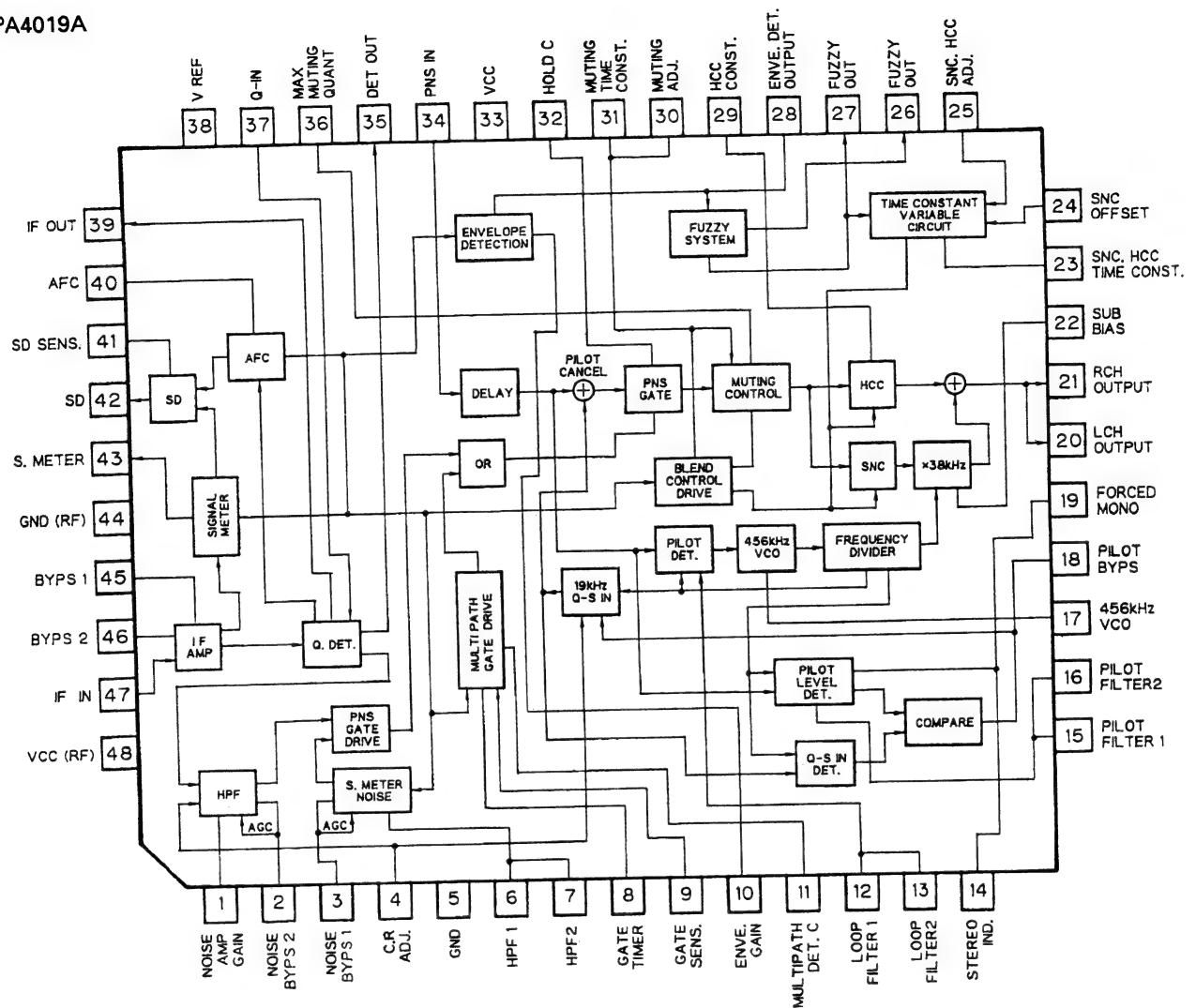
ERROR-XX While in the error mode, an error number is displayed in MIN and SEC.

Select the display with the BAND/REL key.

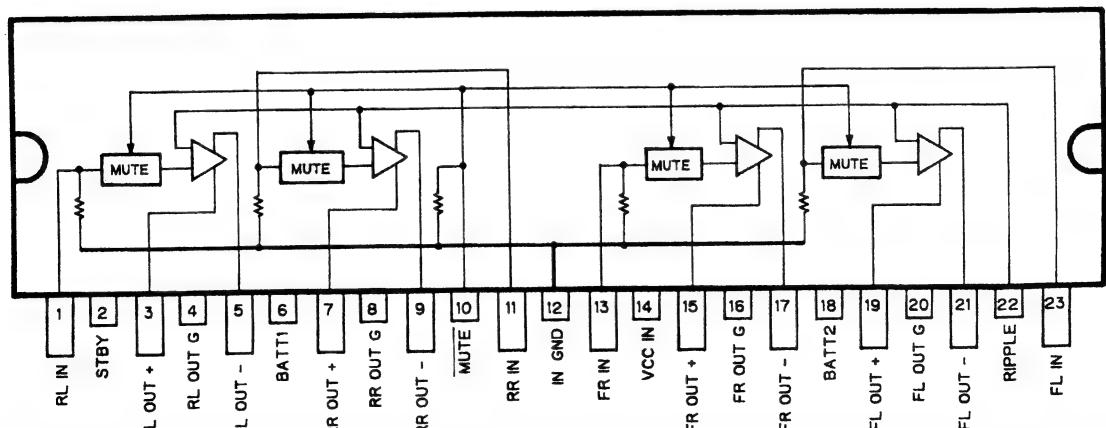
TRACK MIN SEC
 10 40 05 While in the PLAY MODE, an absolute time is indicated in TNO, MIN and SEC.
 TRACK
 10
 MIN SEC 40 05 Select the display with the TRACK +/- key.

●ICs

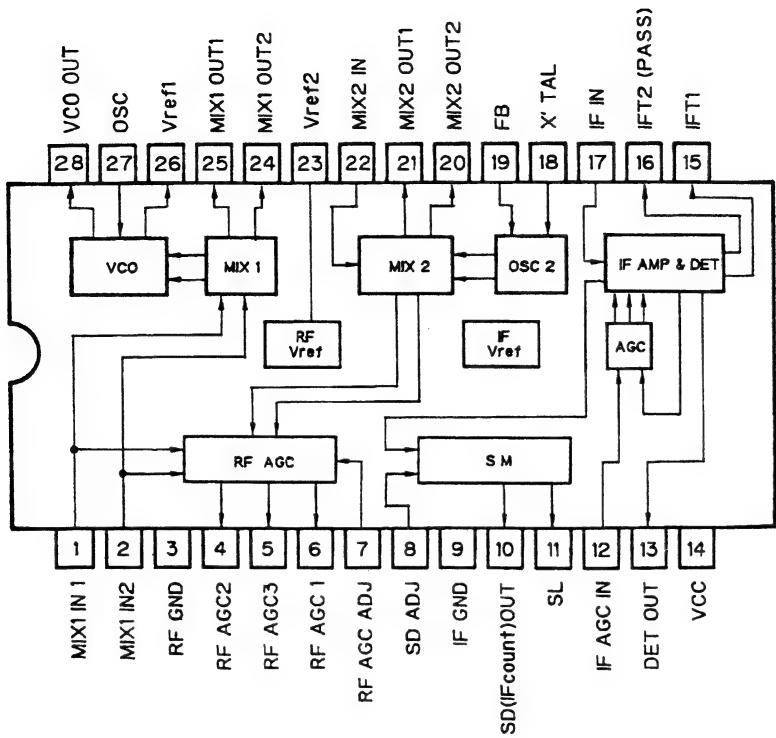
PA4019A



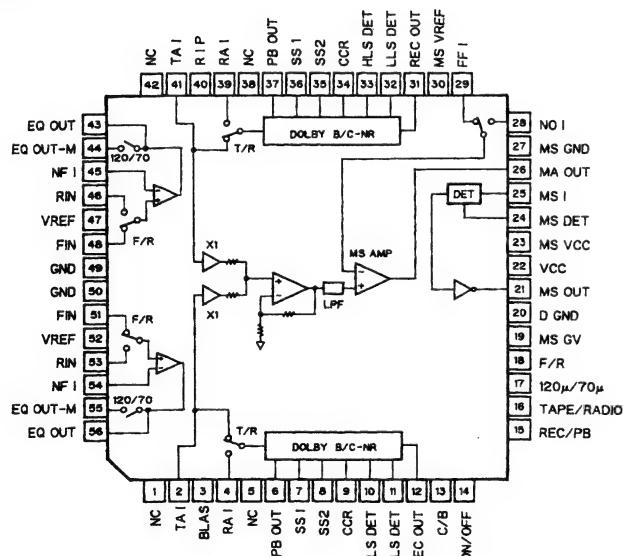
PA3027A



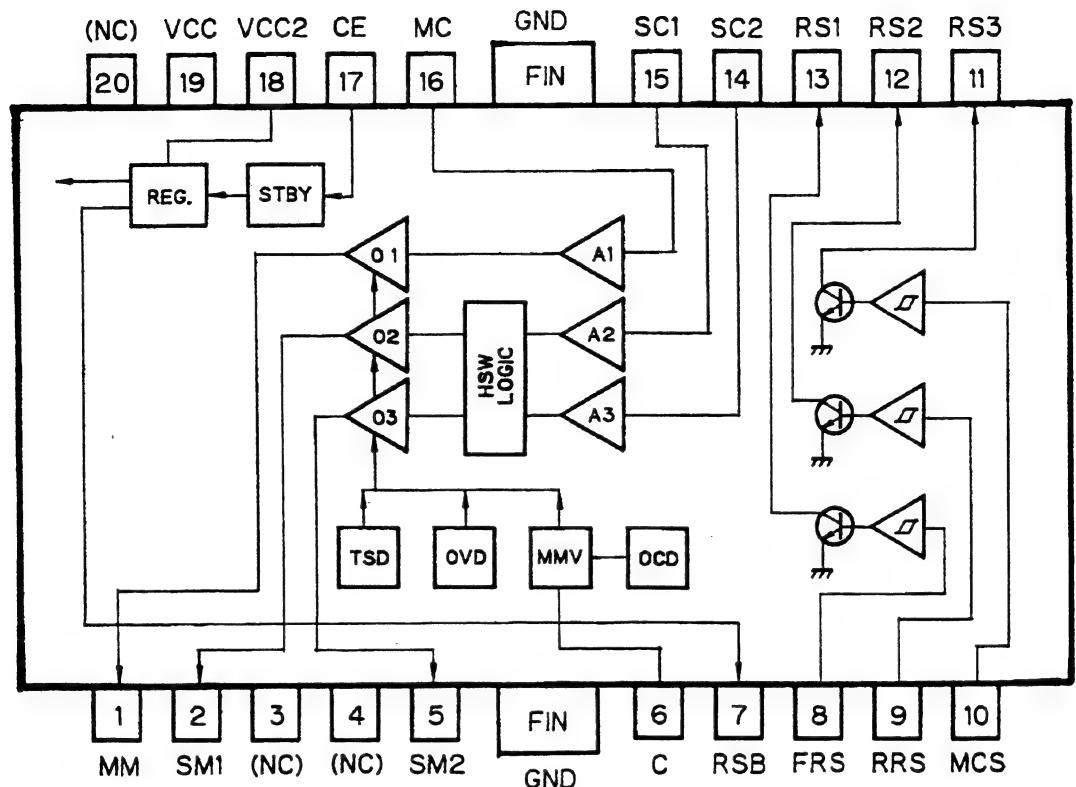
PAF001A



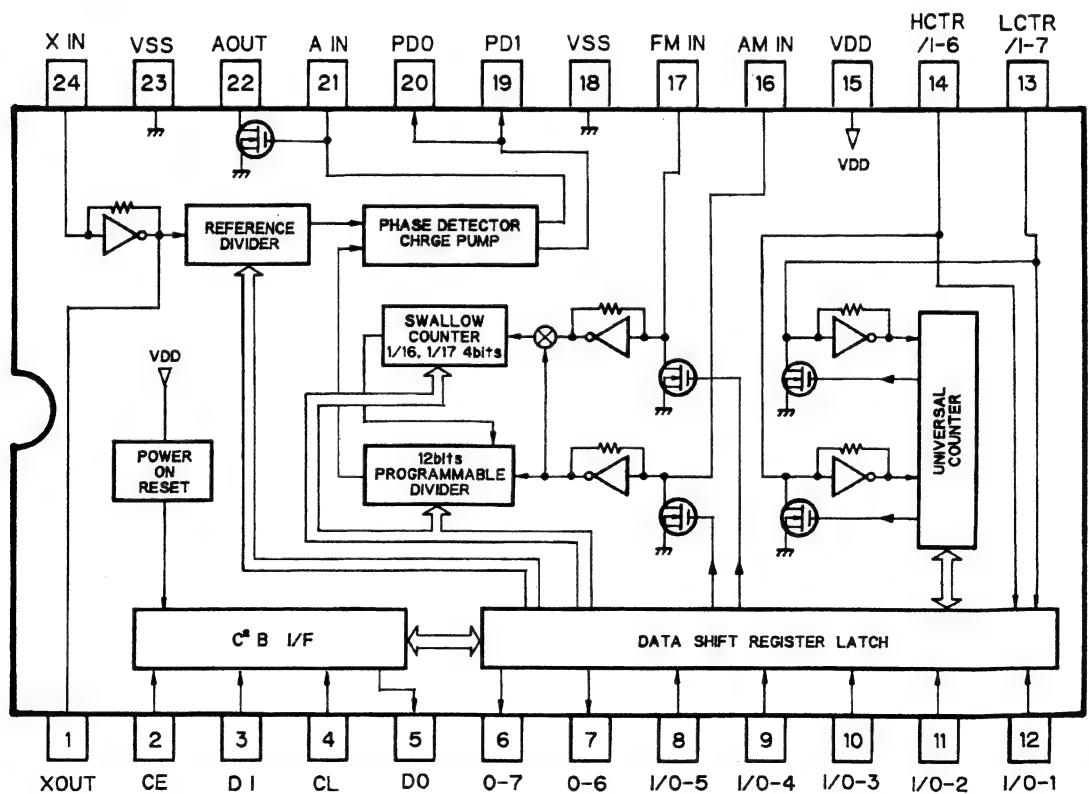
HA12173



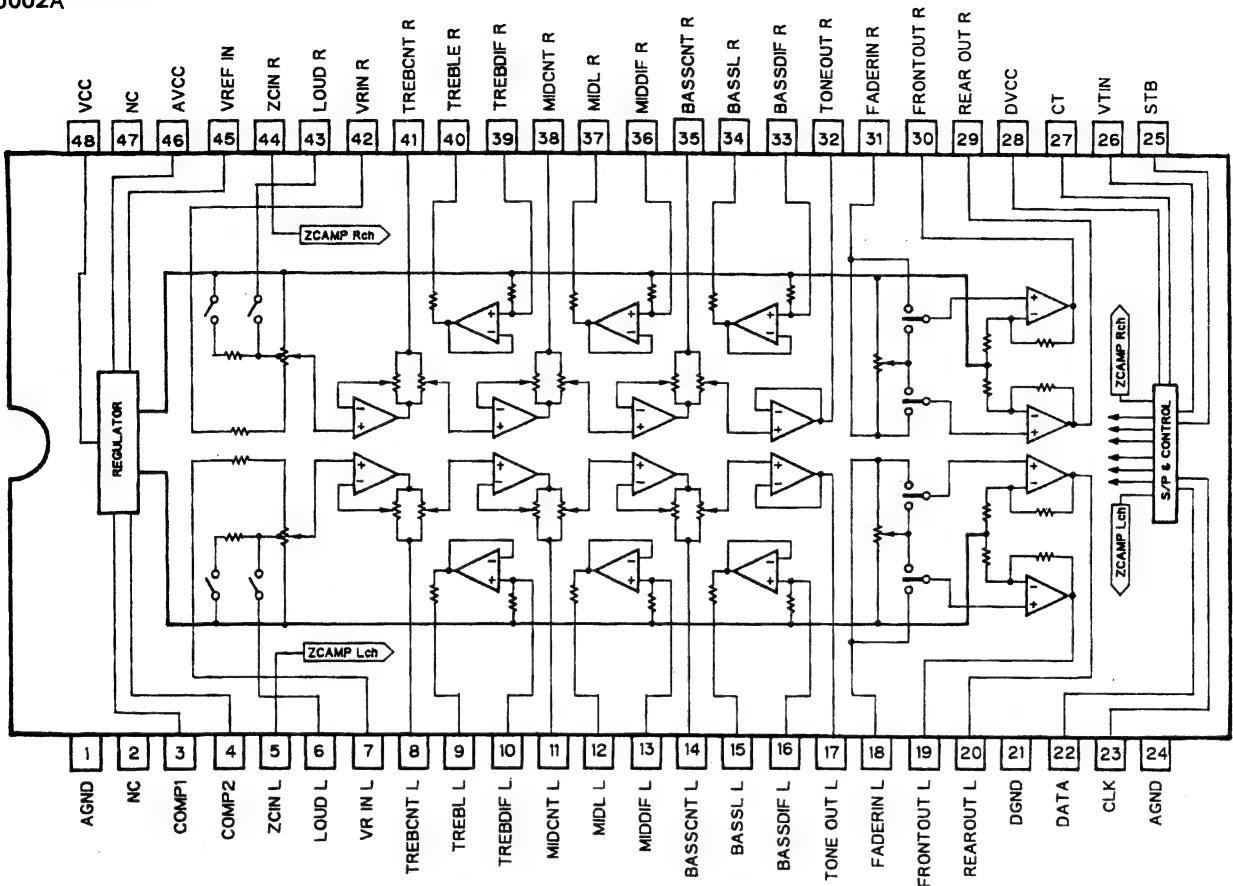
PA2020A



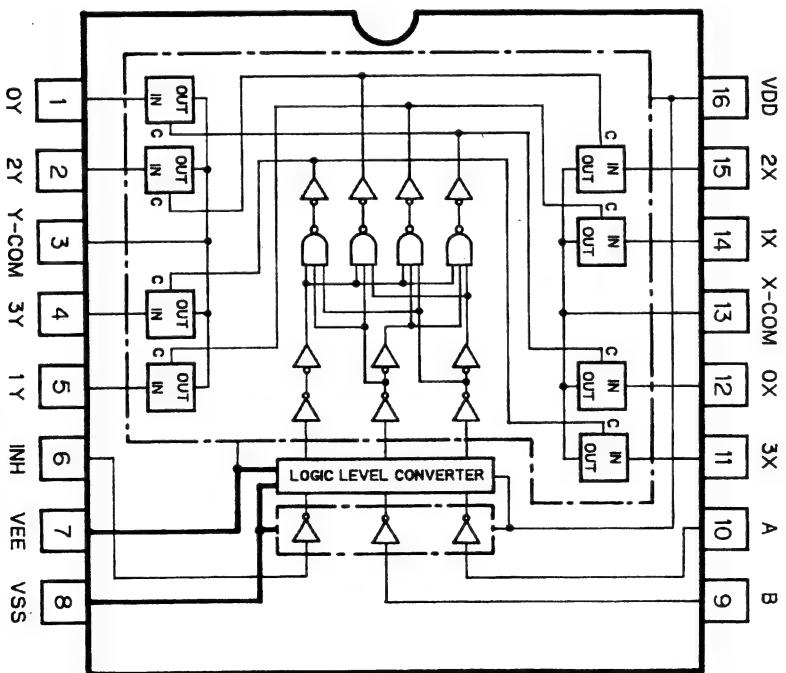
LC72140M



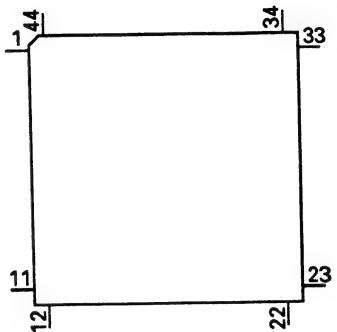
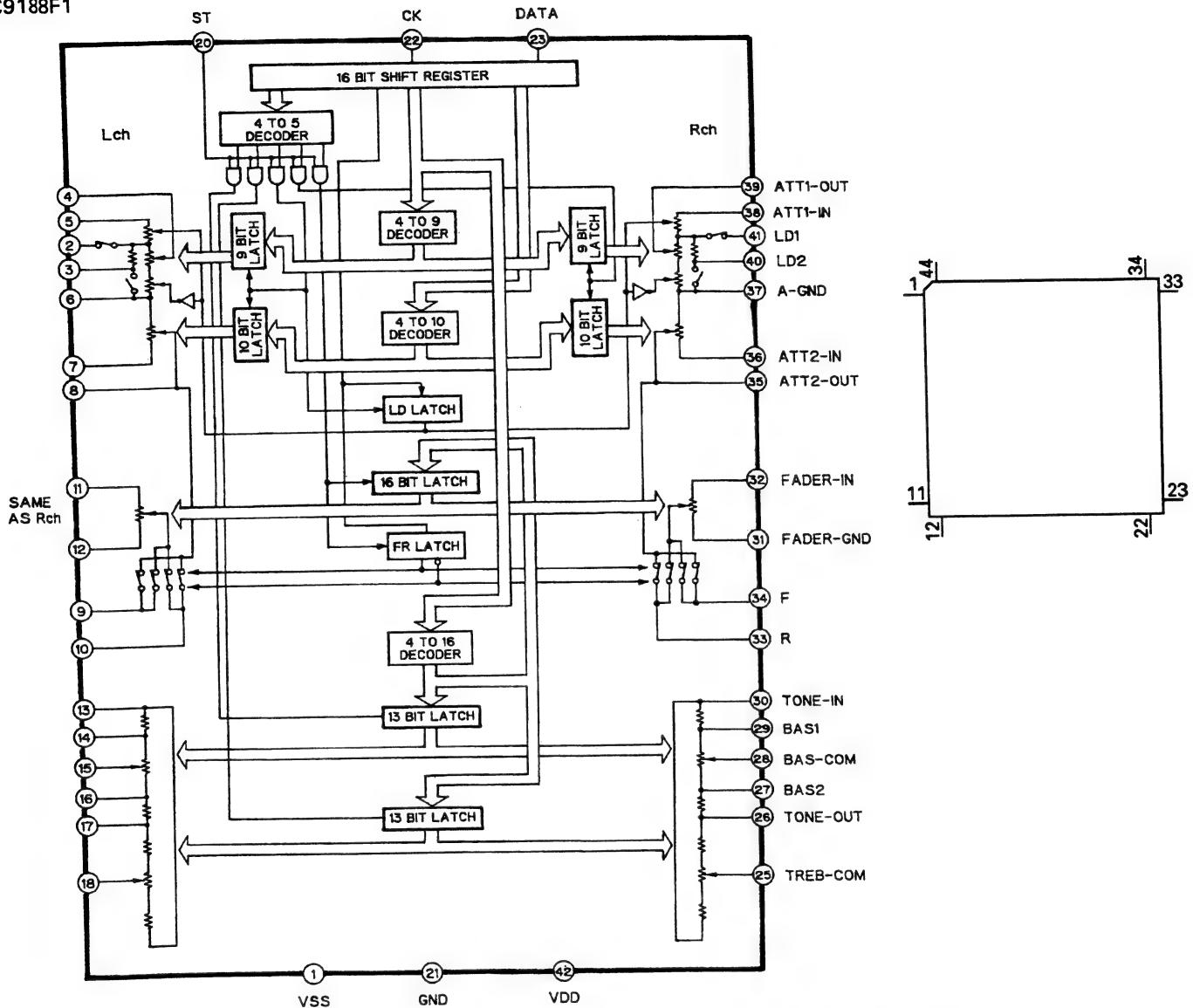
PMJ002A



TC4052BF

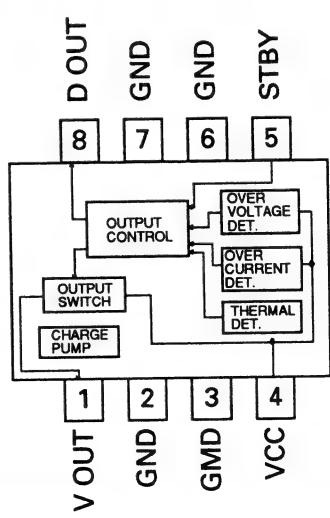
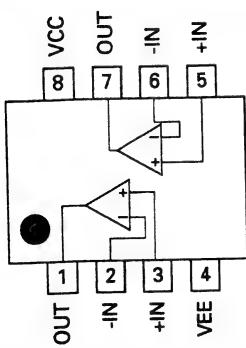


TC9188F1



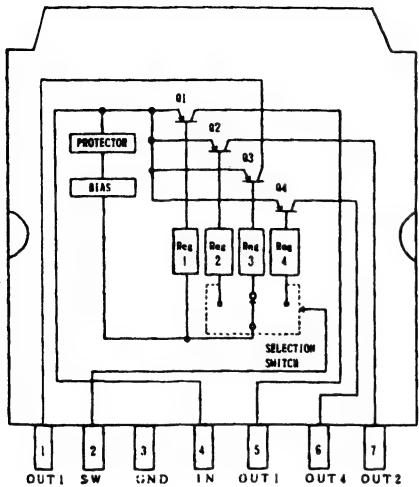
PML001A

NJM4558M, NJM2082M, NJM2068MD1

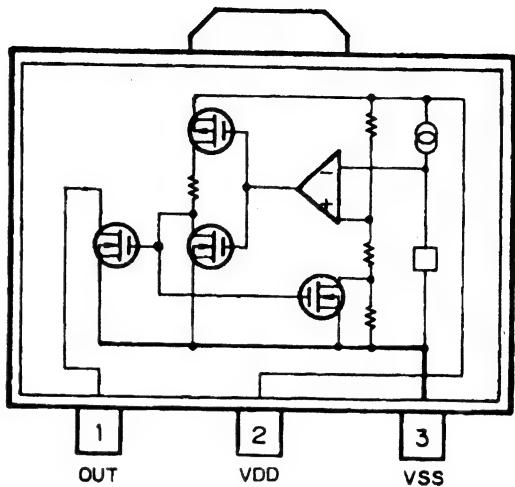




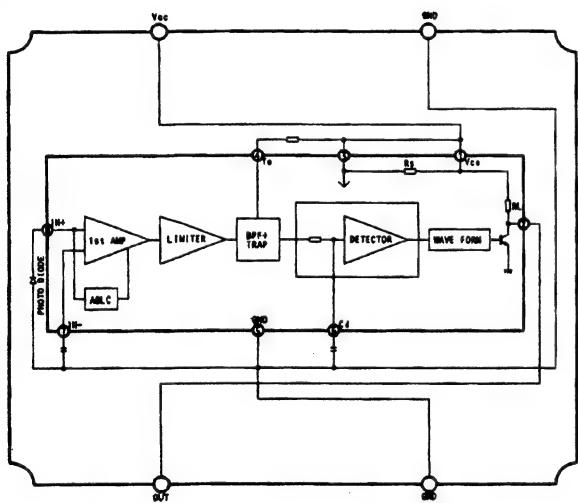
TA8214K



S-80734AN-DY



RS-20



PDR001A

| | | | | | |
|--------|----|----|-------|----|-------|
| SEG15 | 2 | 64 | SEG16 | 48 | SEG32 |
| SEG14 | 3 | 63 | SEG17 | 47 | SEG33 |
| SEG13 | 4 | 62 | SEG18 | 46 | SEG34 |
| SEG12 | 5 | 61 | SEG19 | 45 | SEG35 |
| SEG11 | 6 | 60 | SEG20 | 44 | SEG36 |
| SEG10 | 7 | 59 | SEG21 | 43 | SEG37 |
| SEG9 | 8 | 58 | SEG22 | 42 | SEG38 |
| SEG8 | 9 | 57 | SEG23 | 41 | SEG39 |
| SEG7 | 10 | 56 | SEG24 | 40 | SEG40 |
| SEG6 | 11 | 55 | SEG25 | 39 | SEG41 |
| KS5 | 12 | 54 | SEG26 | 38 | SEG42 |
| KS4 | 13 | 53 | SEG27 | 37 | SEG43 |
| KS3 | 14 | 52 | SEG28 | 36 | COM3 |
| KS2 | 15 | 51 | SEG29 | 35 | COM2 |
| KS1 | 16 | 50 | SEG30 | 34 | COM1 |
| KS0 | | 49 | SEG31 | 33 | COM0 |
| KD3 | 18 | | | | |
| KD2 | 19 | | | | |
| KD1 | 20 | | | | |
| KD0 | 21 | | | | |
| REMIN | 22 | | | | |
| CE | 23 | | | | |
| SWDD | 24 | | | | |
| DISPCS | 25 | | | | |
| KYDT | 26 | | | | |
| GND | 27 | | | | |
| XI | 28 | | | | |
| XO | 29 | | | | |
| DISPCK | 30 | | | | |
| DISPD | 31 | | | | |
| BUSY | 32 | | | | |
| VLCD | | | | | |

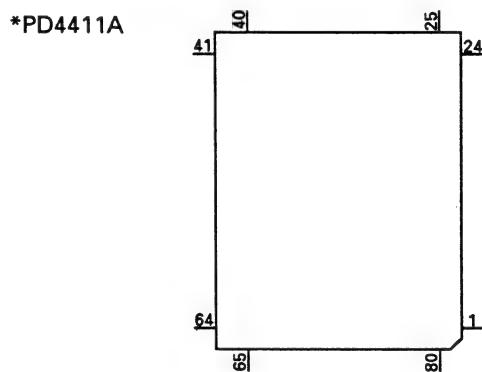
●Pin Functions(PD4411A)

| Pin No. | Pin Name | I/O | Output Format | Function and Operation |
|---------|----------|-----|---------------|---|
| 1 | SL | I | | SD level input |
| 2 | ADV | | | Analog input reference power |
| 3 | VDD1 | | | Device power supply terminal |
| 4 | VDD2 | | | Device power supply terminal |
| 5 | ADPW | O | C | Control output for analog input reference power |
| 6 | RDSEN | O | C | Enable output for RDS IC |
| 7 | RDSSEL | O | C | Select output for RDS IC |
| 8 | RDSRST | O | C | Reset output for RDS IC |
| 9 | TUNPW | O | C | PLL power supply control output |
| 10 | PCK | O | C | Serial clock output for PLL IC |
| 11 | PDO | O | C | Data output for PLL IC |
| 12 | PCE | O | C | Chip enable output for PLL IC |
| 13 | SC2 | O | C | Cassette mechanism sub motor control output |
| 14 | SC1 | O | C | Cassette mechanism sub motor control output |
| 15 | CM | O | C | Cassette mechanism capstan motor control output |
| 16 | STBY | O | C | Cassette mechanism driver stand-by output |
| 17 | RDSDTI | I | | Serial input for RDS IC |
| 18 | RDSDTO | O | C | Serial output for RDS IC |
| 19 | RDSCK | O | C | Serial clock for RDS IC |
| 20 | PEE | O | C | Beep tone output |
| 21 | LCS | O | C | Chip select output for LCD driver |
| 22 | LDT | O | C | Data output for LCD driver |
| 23 | LCK | O | C | Clock output for LCD driver |
| 24 | SWVDD | O | C | Grille power supply control output |
| 25 | F/R | O | C | Cassette mechanism head forward/reverse select output |
| 26 | PLY | O | C | Cassette mechanism MS gain select output |
| 27 | B/C | O | C | Cassette mechanism dolby B/C select input |
| 28 | NR | O | C | Cassette mechanism noise reduction output |
| 29 | ILM | I | | External illumination input |
| 30 | MS | I | | Cassette mechanism MS sense input |
| 31 | MTL | I | | Cassette mechanism tape select input |
| 32 | LD | I | | Cassette mechanism loading sense input |
| 33 | GND | | | GND |
| 34 | MONO | O | NM | Forced mono output |
| 35 | DMUTE | O | NM | Deck intercept mute output |
| 36 | TMUTE | O | NM | Tuner mute output |
| 37 | CDMUTE | O | C | CD mute output |
| 38 | SYSPW | O | C | System power supply control |
| 39 | MUTE | O | C | Mute output |
| 40 | BRST | O | C | P-Bus communication reset output |
| 41 | BRXEN | I/O | C | Bus communication reception enable input pin |
| 42 | EVCK | O | C | Electric volume serial clock output |
| 43 | TP | O | C | Clock adjustment pin |
| 44 | EVDT | O | C | Electric volume serial data output |
| 45 | EVST | O | C | Electric volume strobe output |
| 46 | DSENS | I | | Grille detach sense |
| 47 | ASENS | I | | ACC power sense input pin |
| 48 | BSENS | I | | Back up power sense input pin |
| 49 | REMIN | I | | Remote control pulse input |
| 50 | BSRQ | I | | P-BUS serial pole request input |
| 51 | BSIO | I/O | C | P-BUS serial data input/output |
| 52 | BSCK | I/O | C | Bus serial clock input/output |
| 53 | TOSC | I | | Pull down |
| 54 | GND | | | GND |
| 55 | XT1 | | | Not used |
| 56 | XT2 | | | Not used |
| 57 | GND | | | GND |
| 58 | X1 | | | Not used |
| 59 | X2 | | | Not used |
| 60 | RESET | I | | Reset input |
| 61 | EJCT | I | | Eject key input |

| Pin No. | Pin Name | I/O | Output Format | Function and Operation |
|---------|----------|-----|---------------|--|
| 62 | POS | I | | Cassette mechanism position sense input |
| 63 | RES | I | | Cassette mechanism reverse end sense input |
| 64 | NES | I | | Cassette mechanism forward end sense input |
| 65 | SUB0 | O | NM | Sub woofer select |
| 66 | SUB1 | I | NM | Sub woofer select |
| 67 | DILM | O | NM | Illumination select output |
| 68 | ILMPW | O | NM | Illumination power supply control output |
| 69 | TEL | I | | TEL mute input |
| 70 | TEST | | | Test terminal |
| 70 | CSENS | I | | Flap close sense |
| 72 | LBUSY | I | | Busy input for LCD driver |
| 73 | AGND | | | Analog circuit GND |
| 74 | PDI | I | | Data input for PLL IC |
| 75 | RDSRDY | I | | Ready input for RDS IC |
| 76 | SD | I | | SD input for tuner |
| 77 | GND | | | GND |
| 78 | SEL1 | I | | Destination sense |
| 79 | SEL2 | I | | Destination sense |
| 80 | SEL3 | I | | Destination sense |

| Output Format | Meaning |
|---------------|--|
| C | CMOS output |
| NM | Middle resistivity N channel open drain |

IC's marked by* are MOS type.
Be careful in handing them because they are very liable to be damaged by electrostatic induction.



●FM Front End (CWB1065)

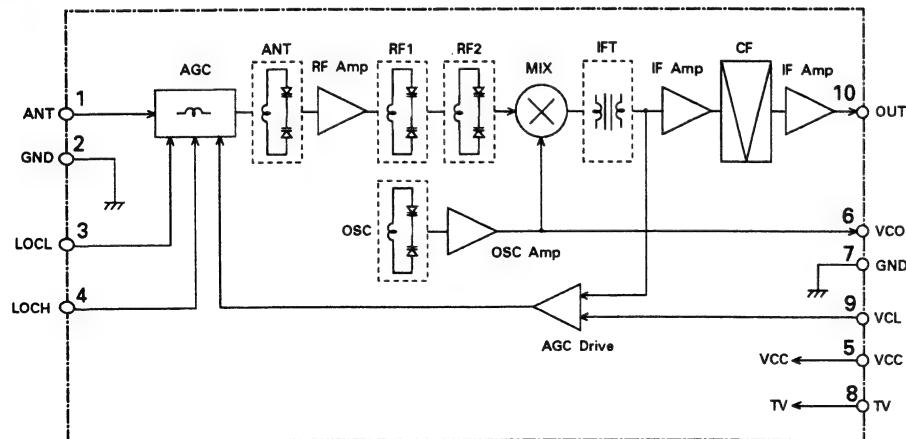
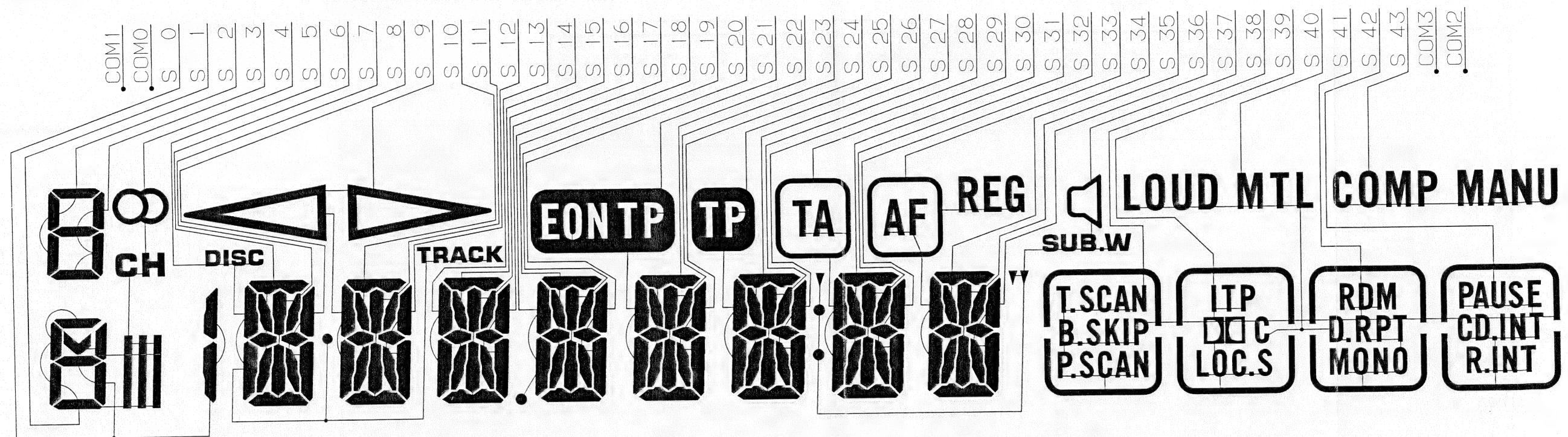


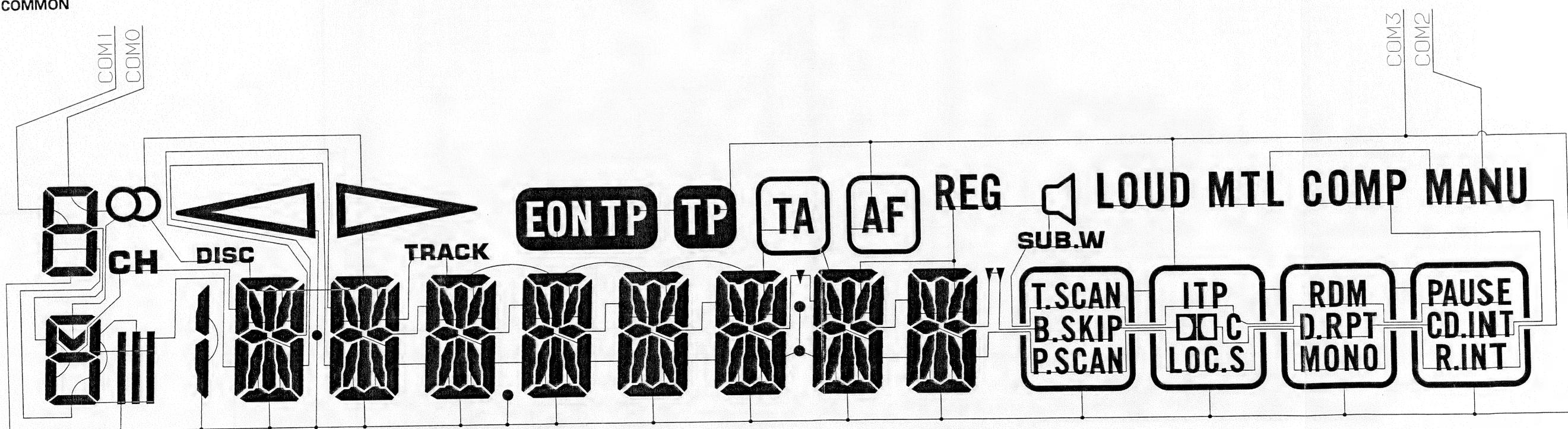
Fig. 22

●LCD (CAW1192)

SEGMENT



COMMON



12. CONNECTION DIAGRAM (KEH-M780/US, KEH-M8550/ES)

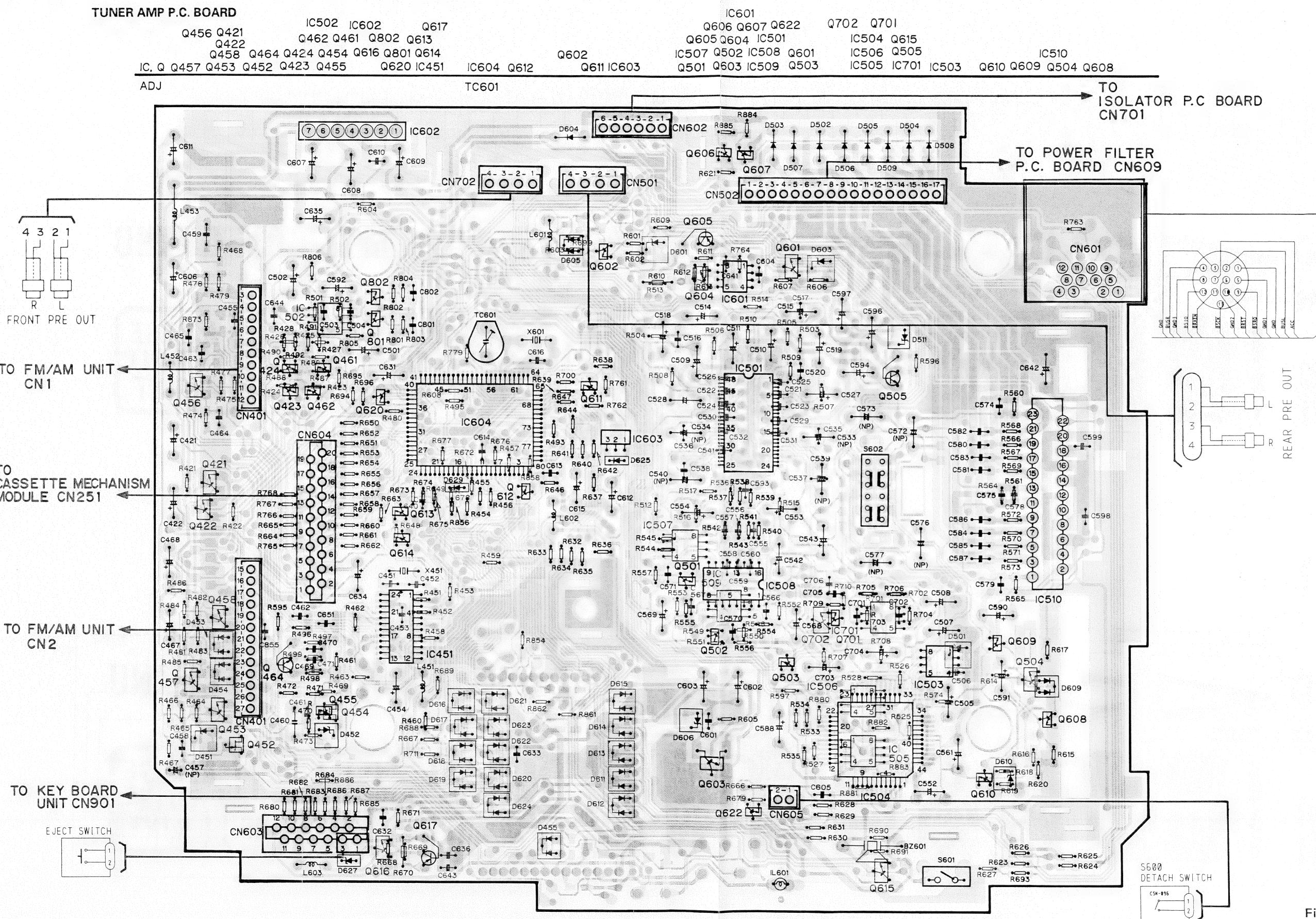
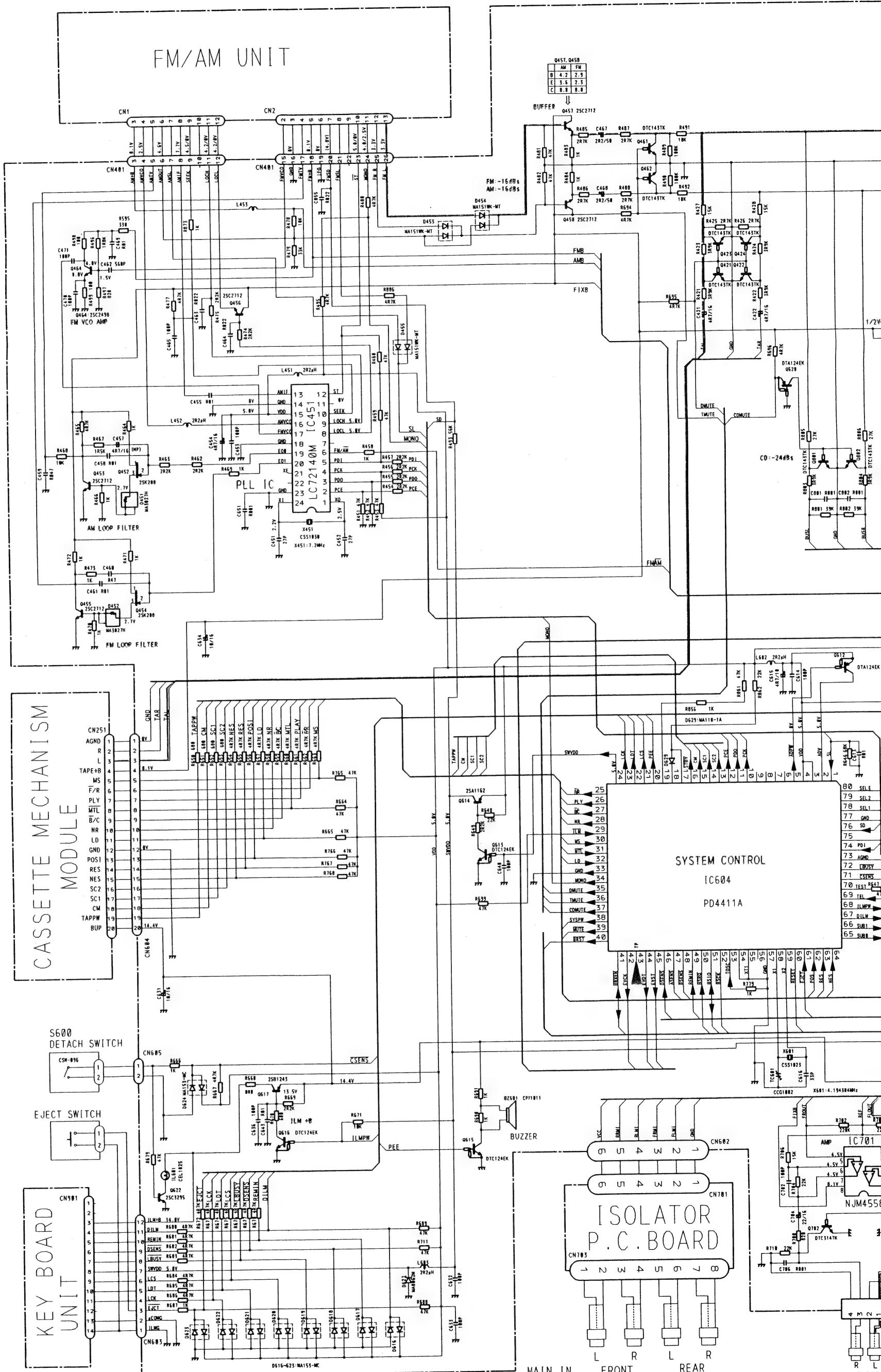


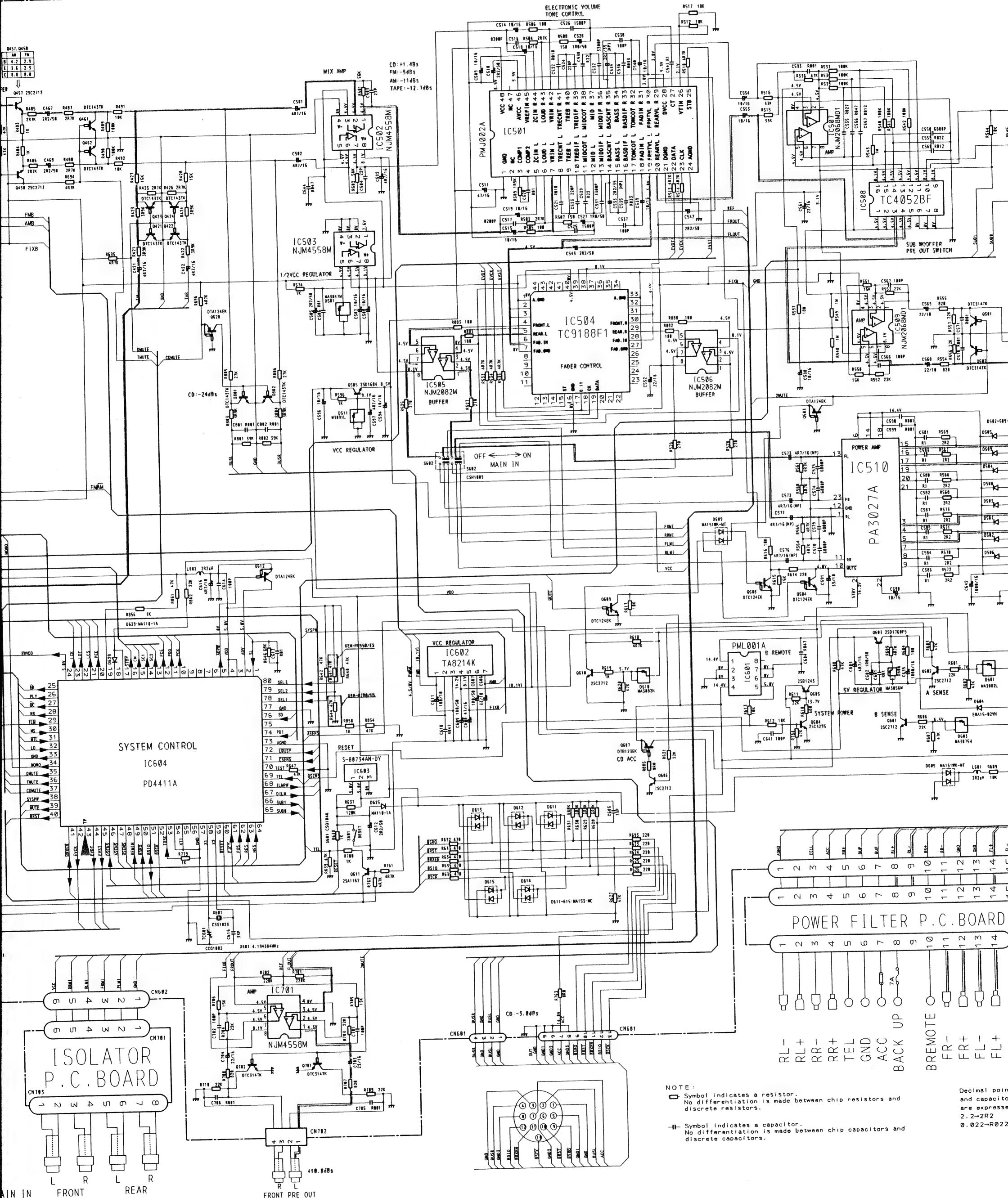
Fig. 24

13. SCHEMATIC CIRCUIT DIAGRAM (KEH-M780/US, KEH-M8550/ES)

TUNER AMP P.C.B.



ER AMP P.C. BOARD



NOTE :
■ Symbol indicates a resistor.
No differentiation is made between chip resistors and

- ||- Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal point
and capacitor
are expressed
 $2.2 \rightarrow 2R2$
 $0.022 \rightarrow R022$

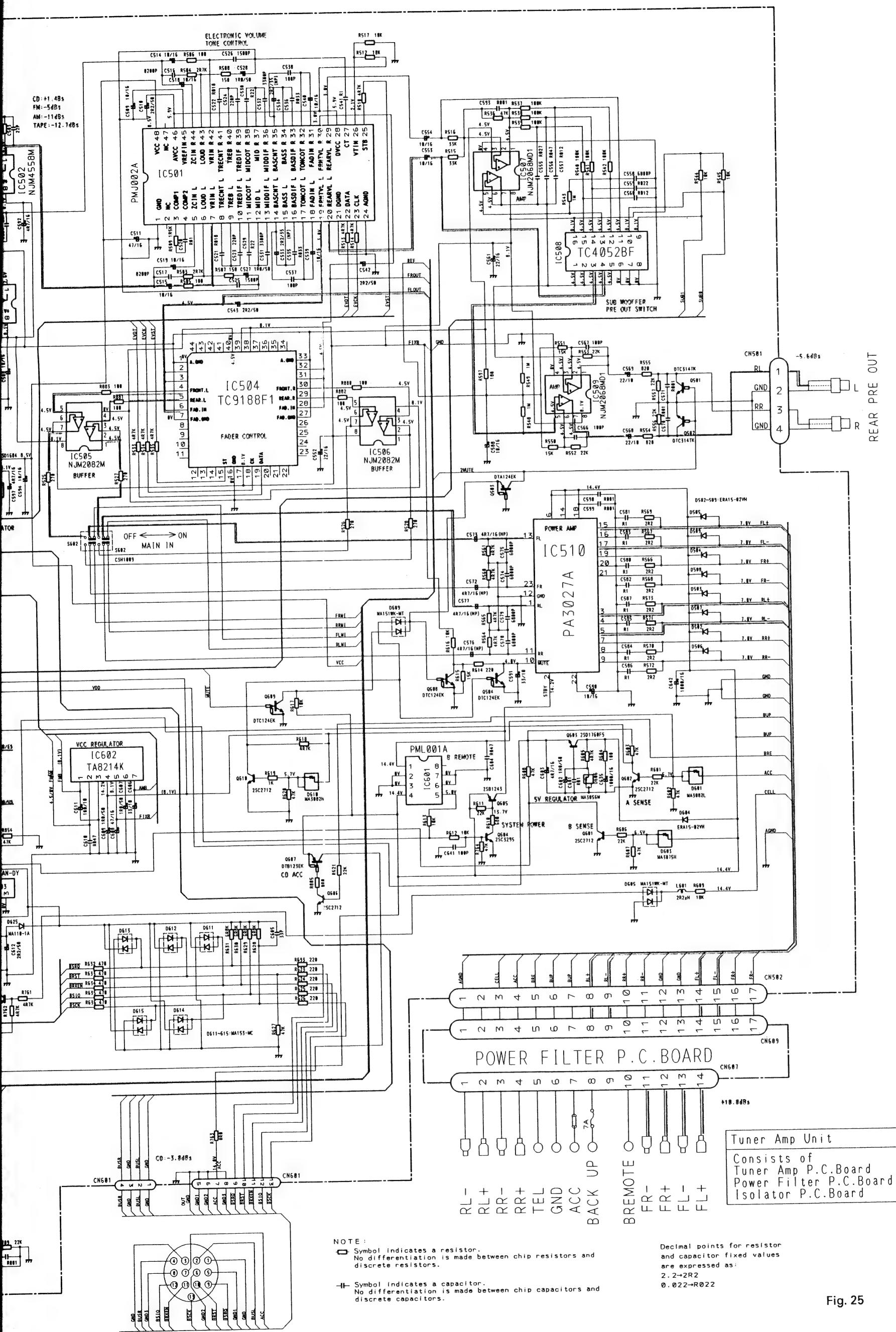
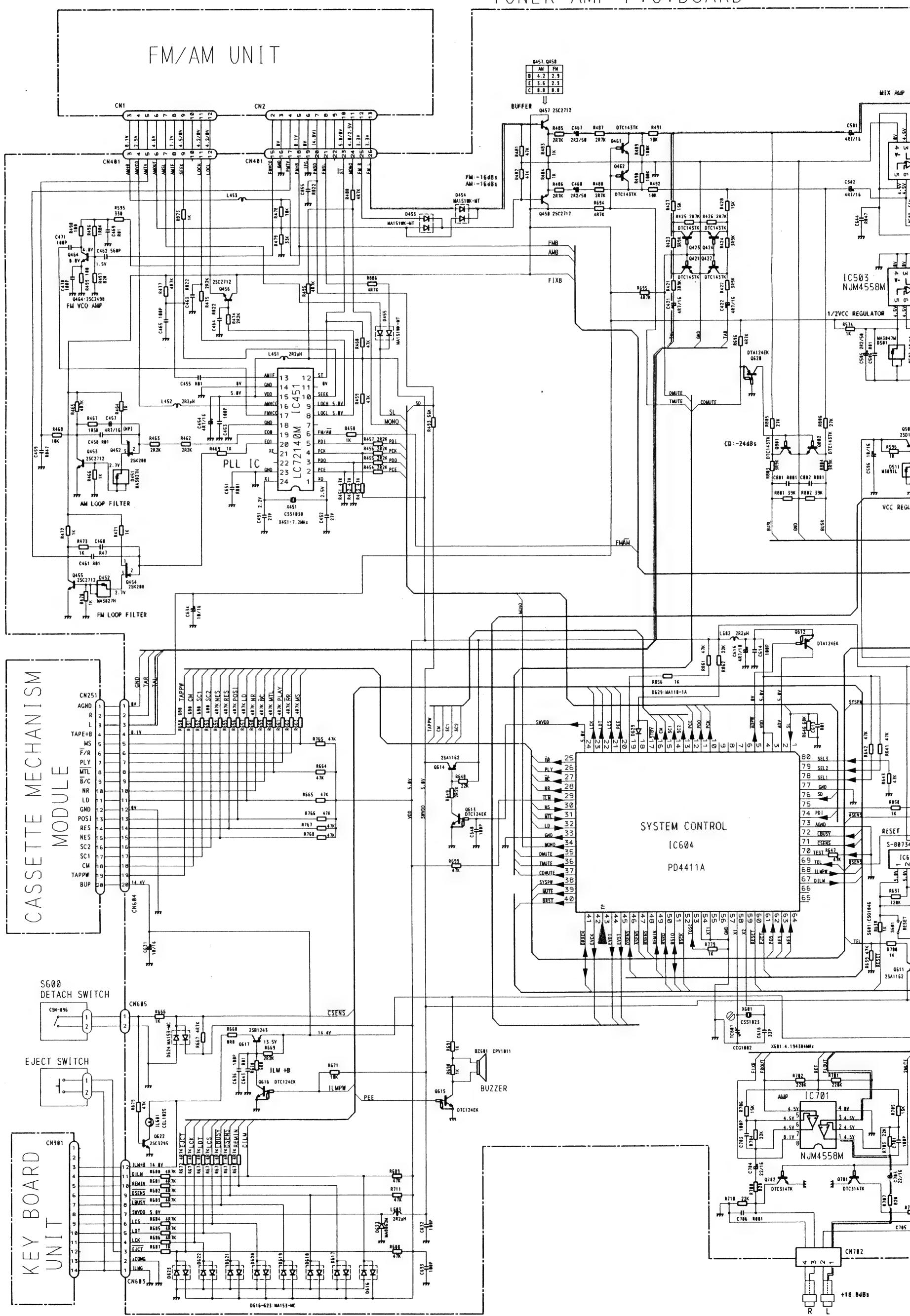


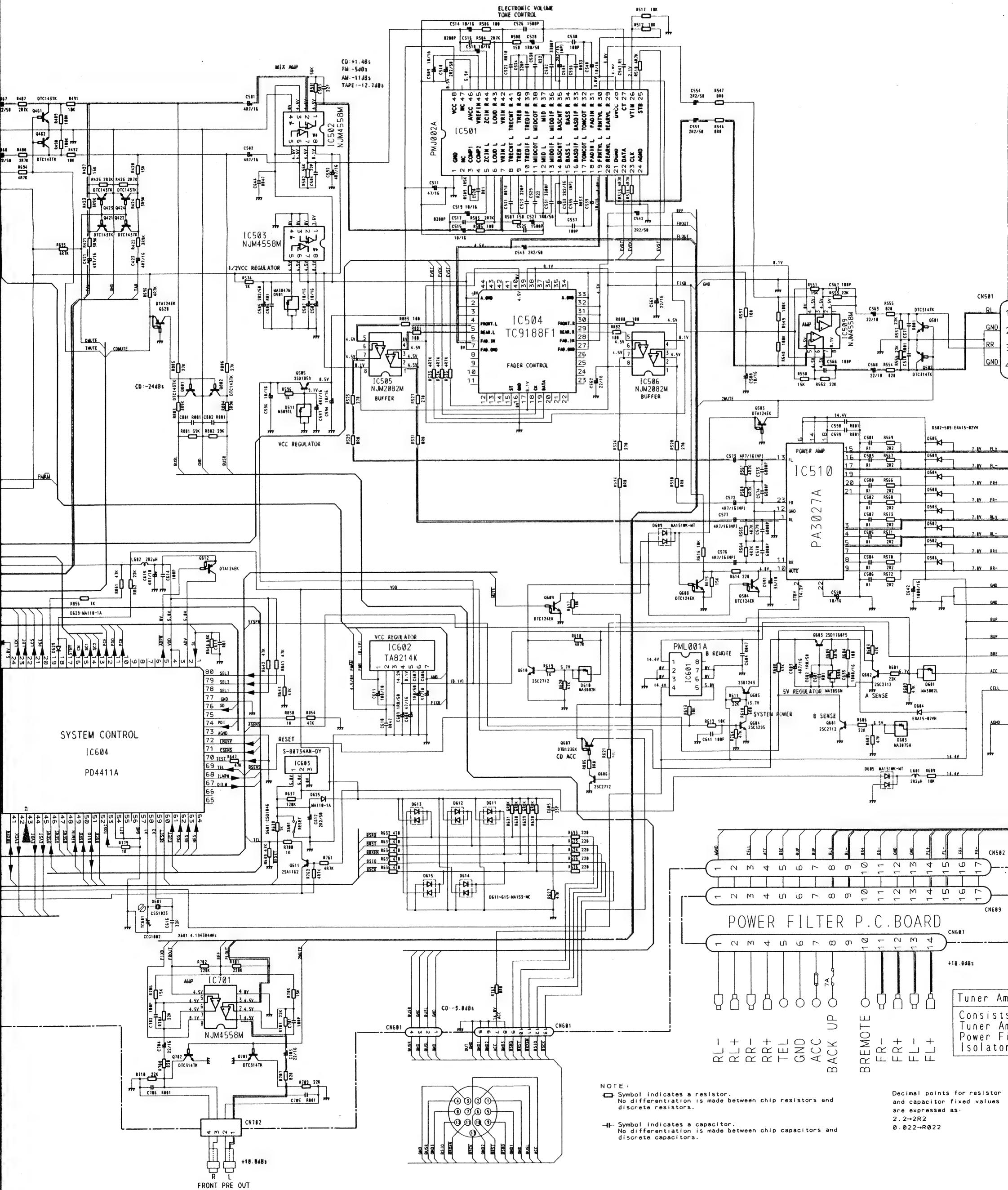
Fig. 25

14. SCHEMATIC CIRCUIT DIAGRAM (KEH-M8500/US)

TUNER AMP P.C. BOARD

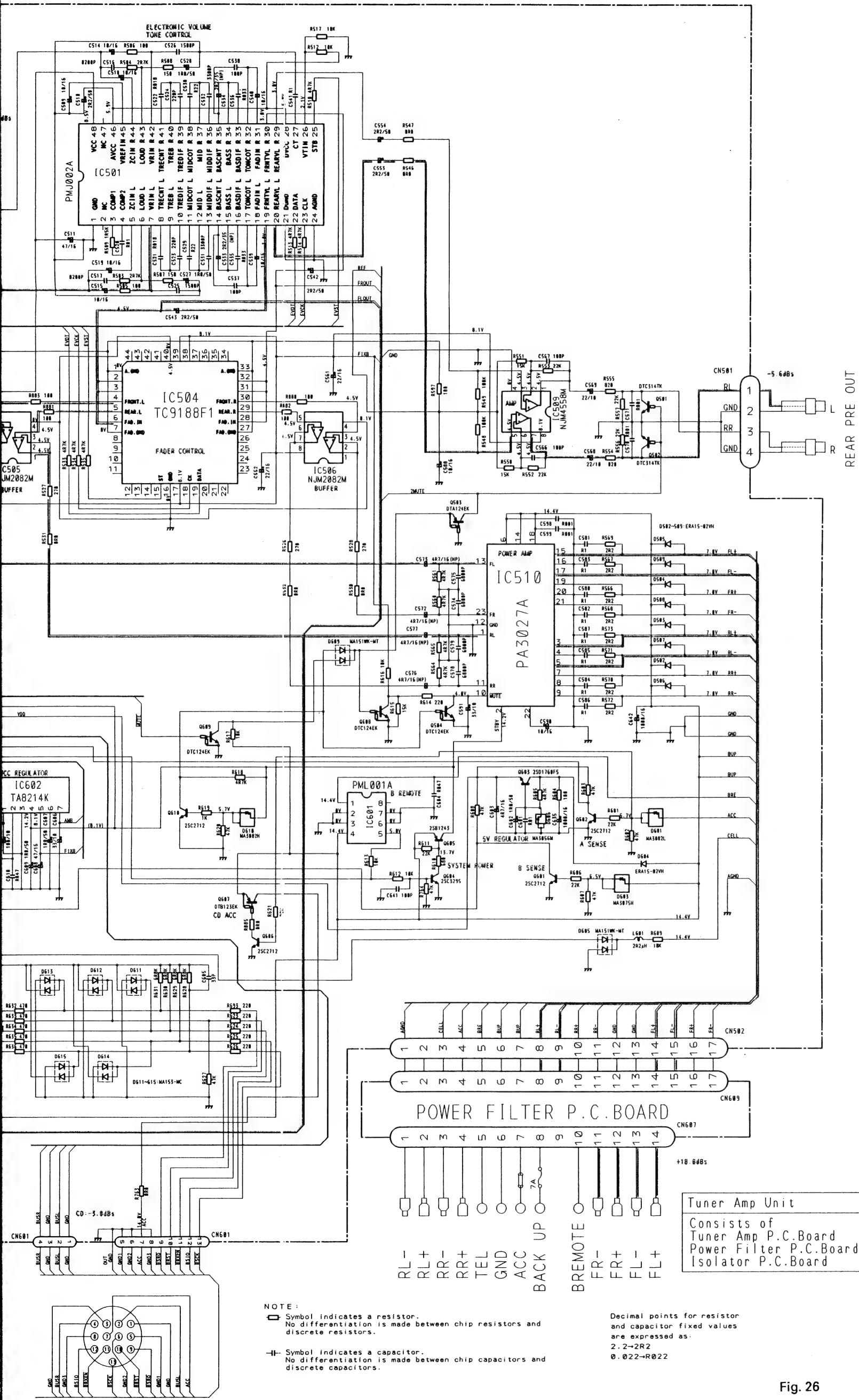


AMP P.C. BOARD



FR-
RR+
RR-
TEL
GND
ACC
BACK UP

FR+
FL+



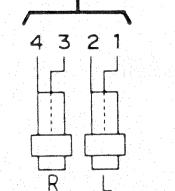
15. CONNECTION DIAGRAM (KEH-M8500/US)

TUNER AMP P.C. BOARD

| | | | | | | | |
|-----------------|-------|-------|---------------------|-----------|-----------|-------------|-----------|
| Q456 Q421 | IC502 | IC602 | Q617 | IC601 | Q606 Q607 | Q622 | Q702 Q701 |
| Q422 | Q462 | Q461 | Q802 Q613 | Q605 Q604 | IC501 | IC504 Q615 | |
| Q458 | Q464 | Q424 | Q454 Q616 Q801 Q614 | Q502 | Q601 | IC506 Q505 | |
| IC, Q Q457 Q453 | Q452 | Q423 | Q455 | Q501 Q603 | IC509 | IC505 IC701 | IC503 |
| Q620 IC451 | IC604 | Q612 | Q611 IC603 | Q503 | Q610 Q609 | Q504 | Q608 |

ADJ

TC601

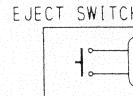


TO FM/AM UNIT
CN1

TO
CASSETTE MECHANISM
MODULE CN251

TO FM/AM UNIT
CN2

TO KEY BOARD
UNIT CN901



| | | | | | | |
|------|------|-------|-------|-----------|-------|-------------|
| Q602 | Q611 | IC603 | IC601 | Q606 Q607 | Q622 | Q702 Q701 |
| Q604 | Q612 | Q603 | Q601 | Q605 | IC501 | IC504 Q615 |
| Q608 | Q609 | Q609 | Q601 | Q607 | Q601 | IC506 Q505 |
| Q610 | Q611 | Q603 | Q601 | Q607 | Q601 | IC505 IC701 |
| Q610 | Q609 | Q603 | Q601 | Q607 | Q601 | IC503 |
| Q610 | Q609 | Q603 | Q601 | Q607 | Q601 | Q610 Q609 |
| Q610 | Q609 | Q603 | Q601 | Q607 | Q601 | Q504 Q608 |

ADJ

TC601

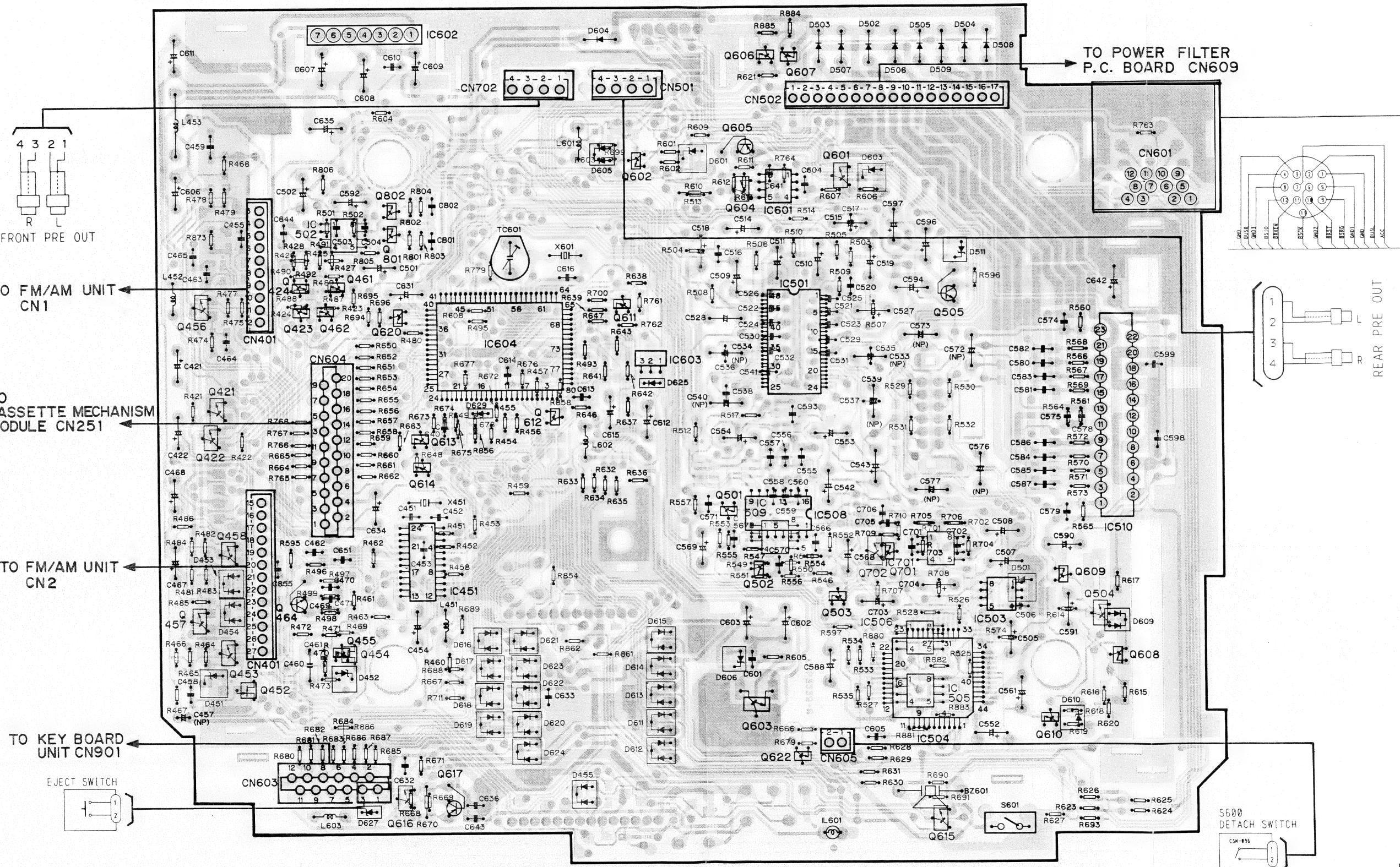


Fig. 27

16. CIRCUIT DIAGRAM AND PATTERN

16.1 FM/AM UNIT

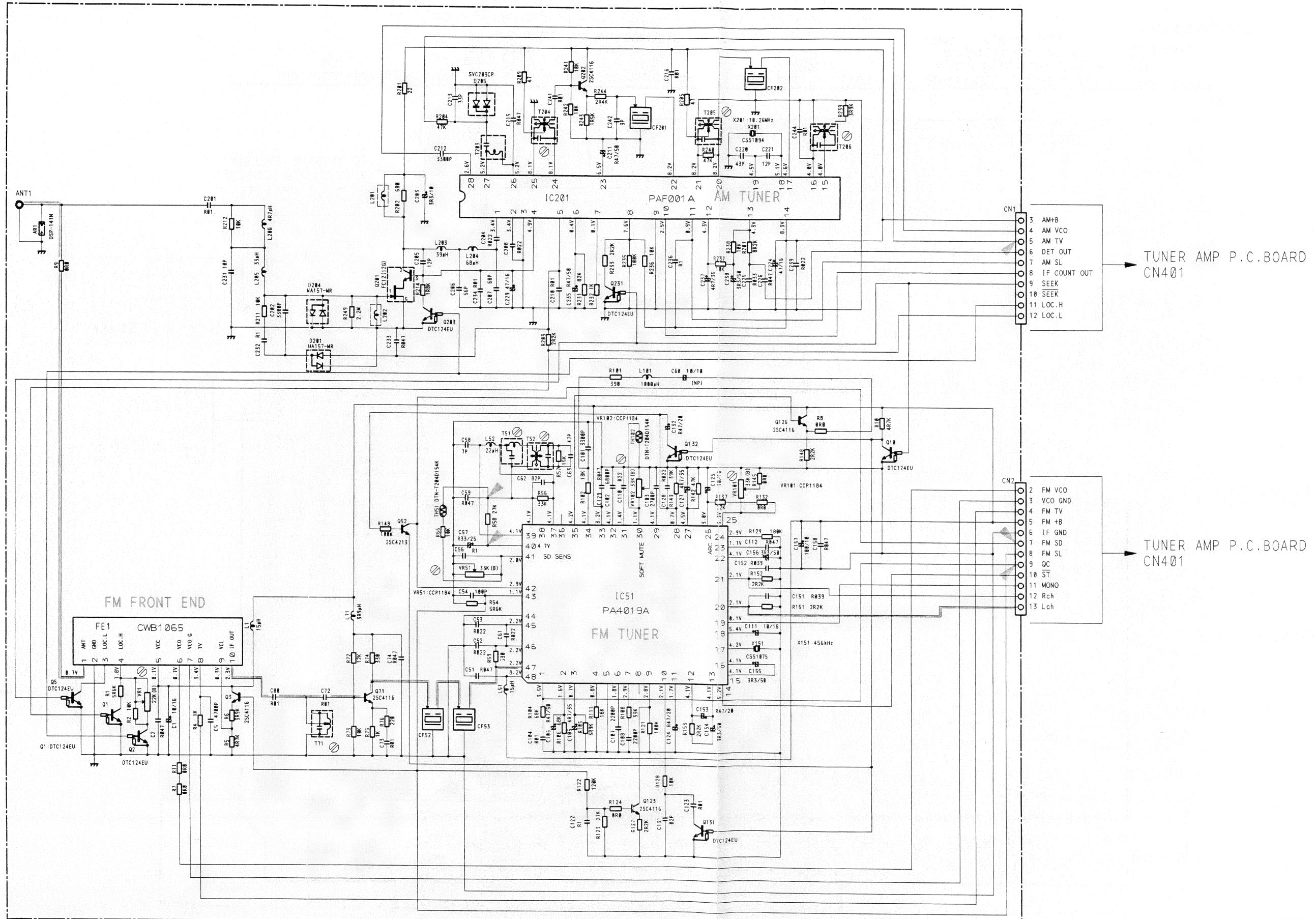
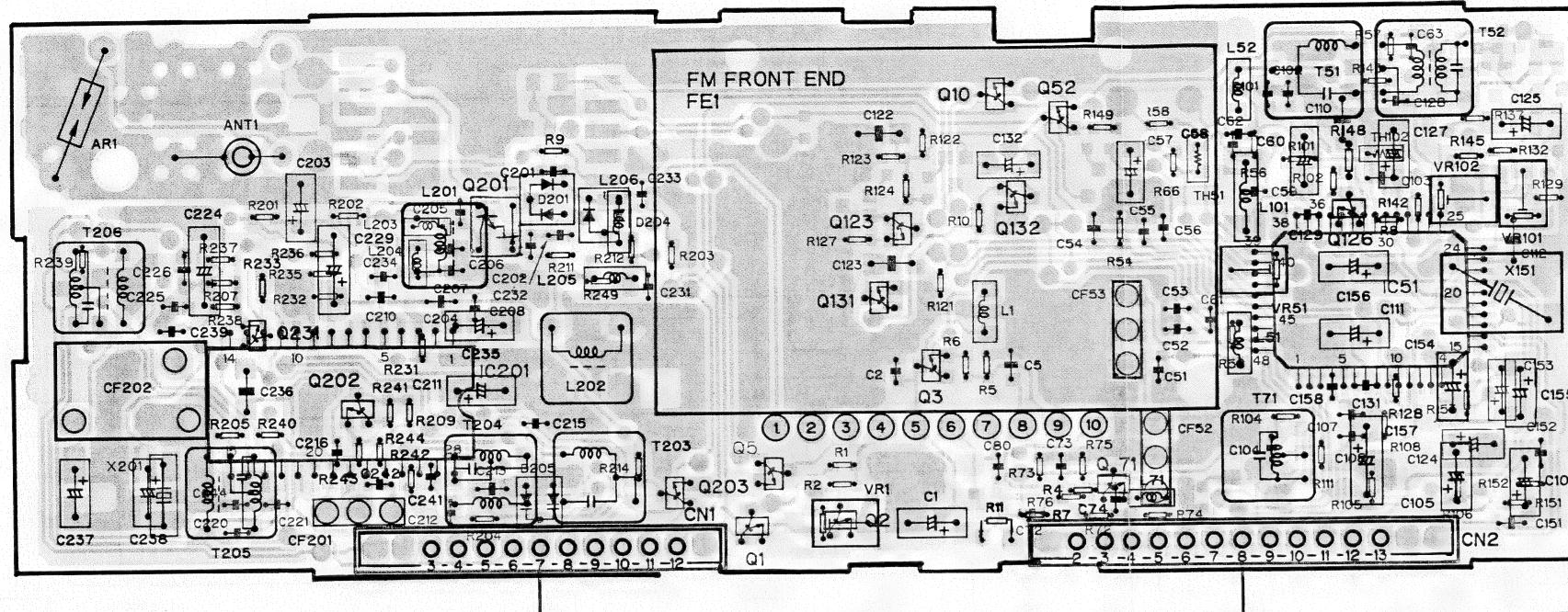


Fig. 28

FM/AM UNIT

IC, Q Q231 IC201
 Q202 Q201 Q5 Q123
 ADJ T206 T205 Q203 Q1 Q2 Q131
 T204 VR1 Q3 Q10 Q132 Q52 Q71

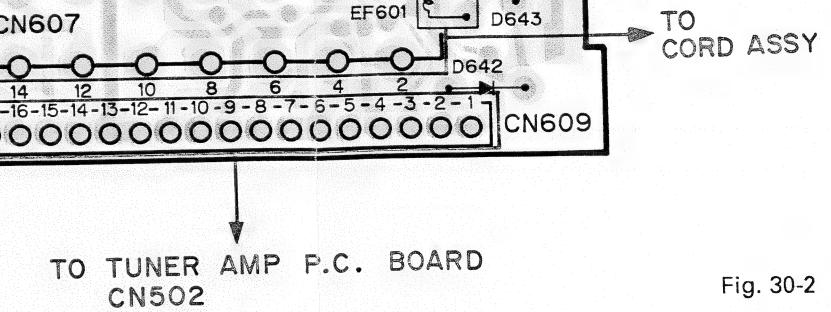
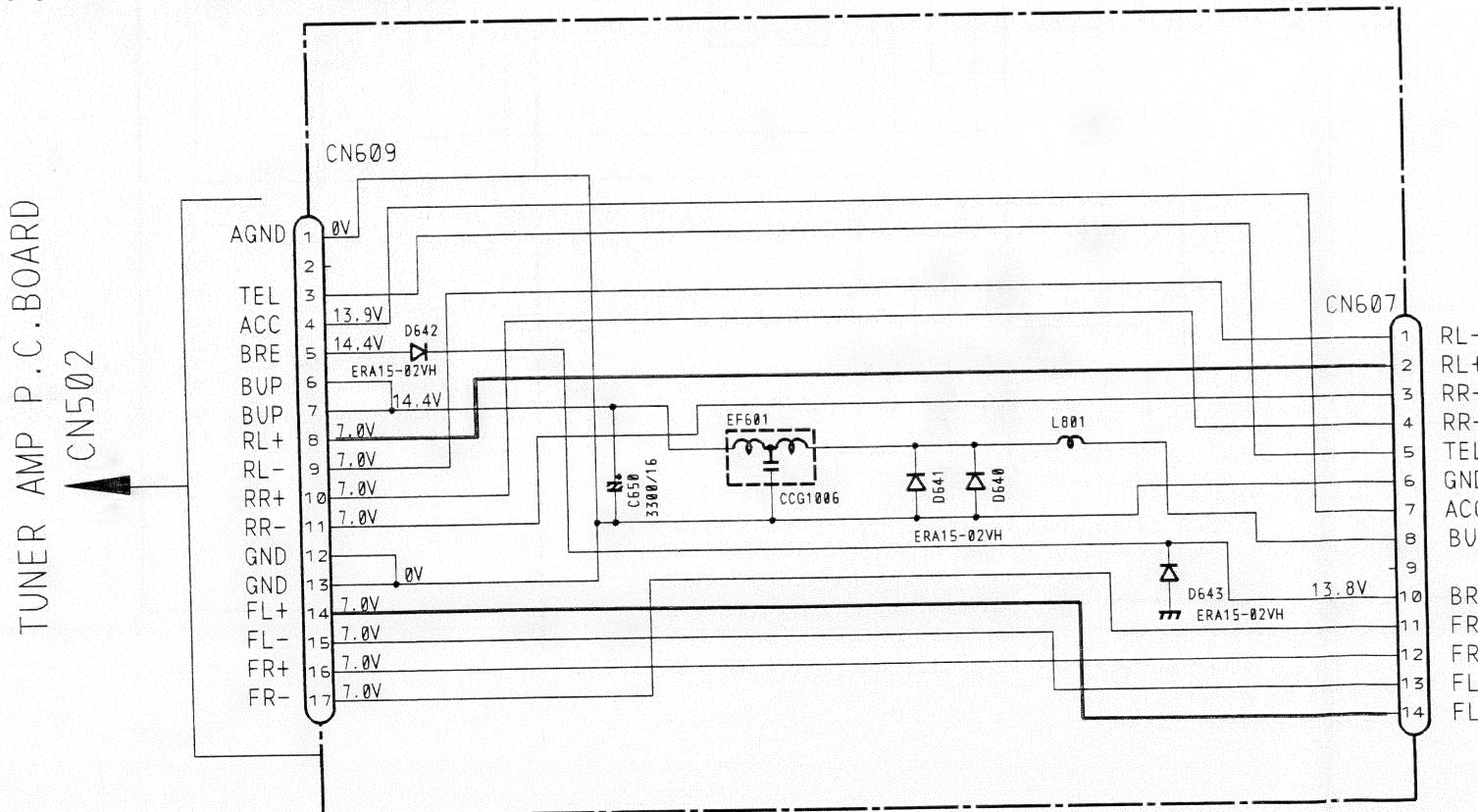
Q126
 IC51



TO TUNER AMP P.C. BOARD
 CN401

Fig. 29

16.2 POWER FILTER P.C. BOARD

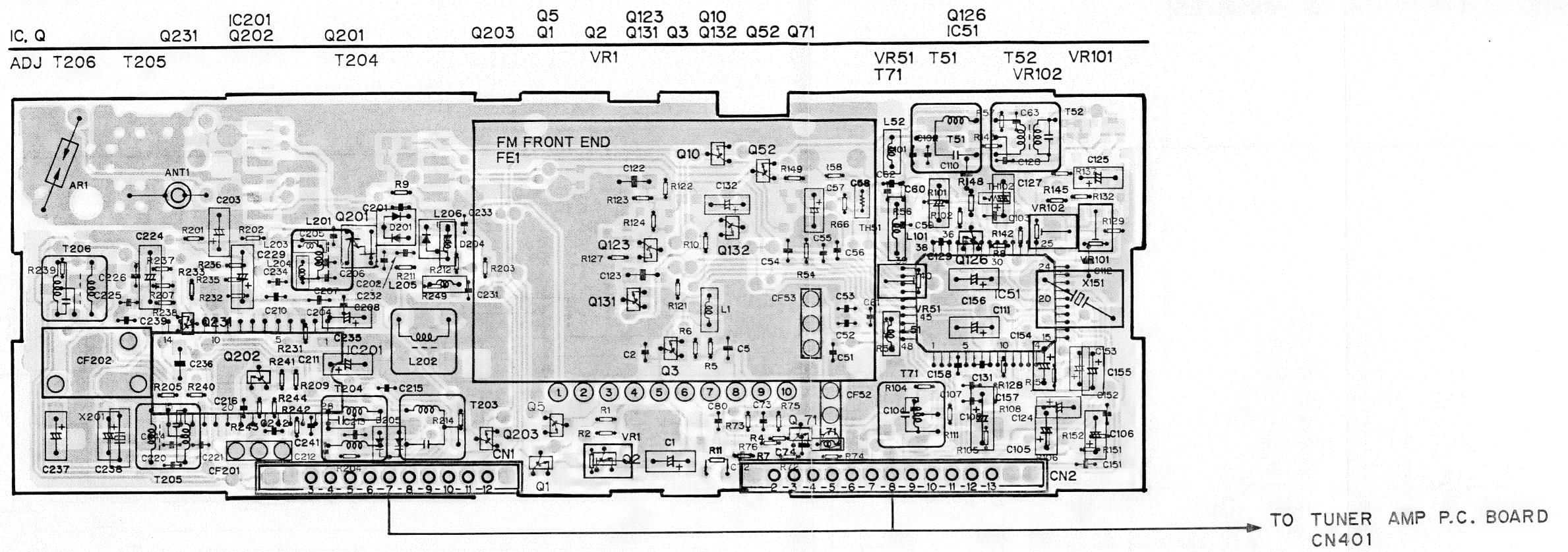


TO TUNER AMP P.C. BOARD
 CN502

Fig. 30-2

Fig. 30-1

FM/AM UNIT



16.3 ISOLATOR P.C. BOARD (KEH-M780/US, KEH-M8550/ES)

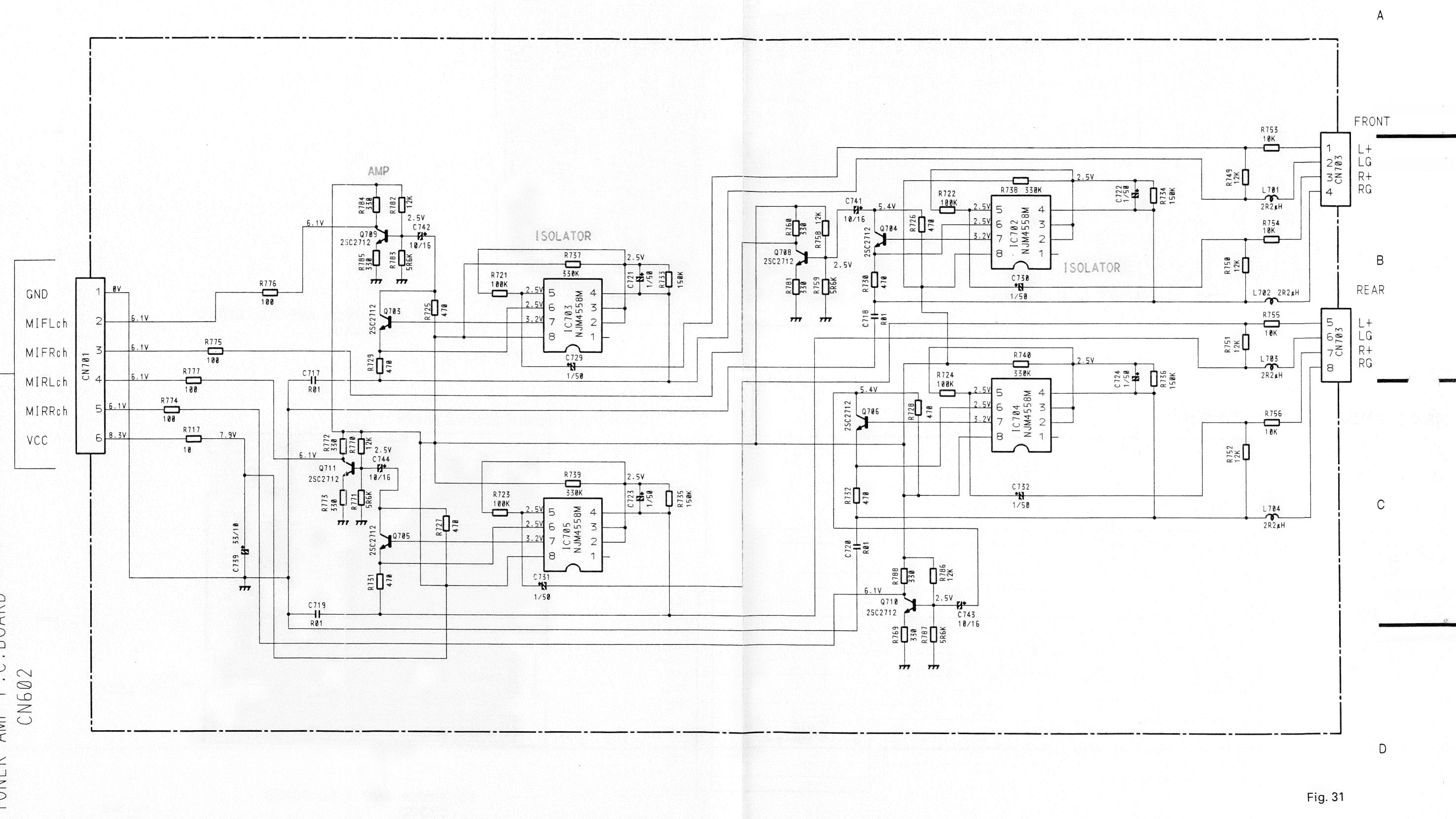


Fig. 31

16.4 CASSETTE MECHANISM MODULE

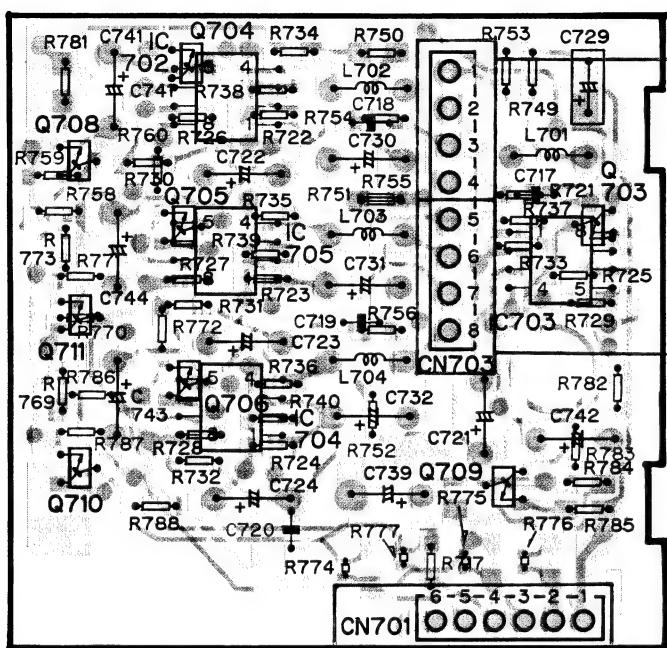
DECK UNIT

| IC, Q | Q352 | IC351 | Q351 | Q271 | IC251 |
|-------|------|-------|------|------|-------------|
| ADJ | | | | | VR301 VR302 |

A ISOLATOR P.C. BOARD

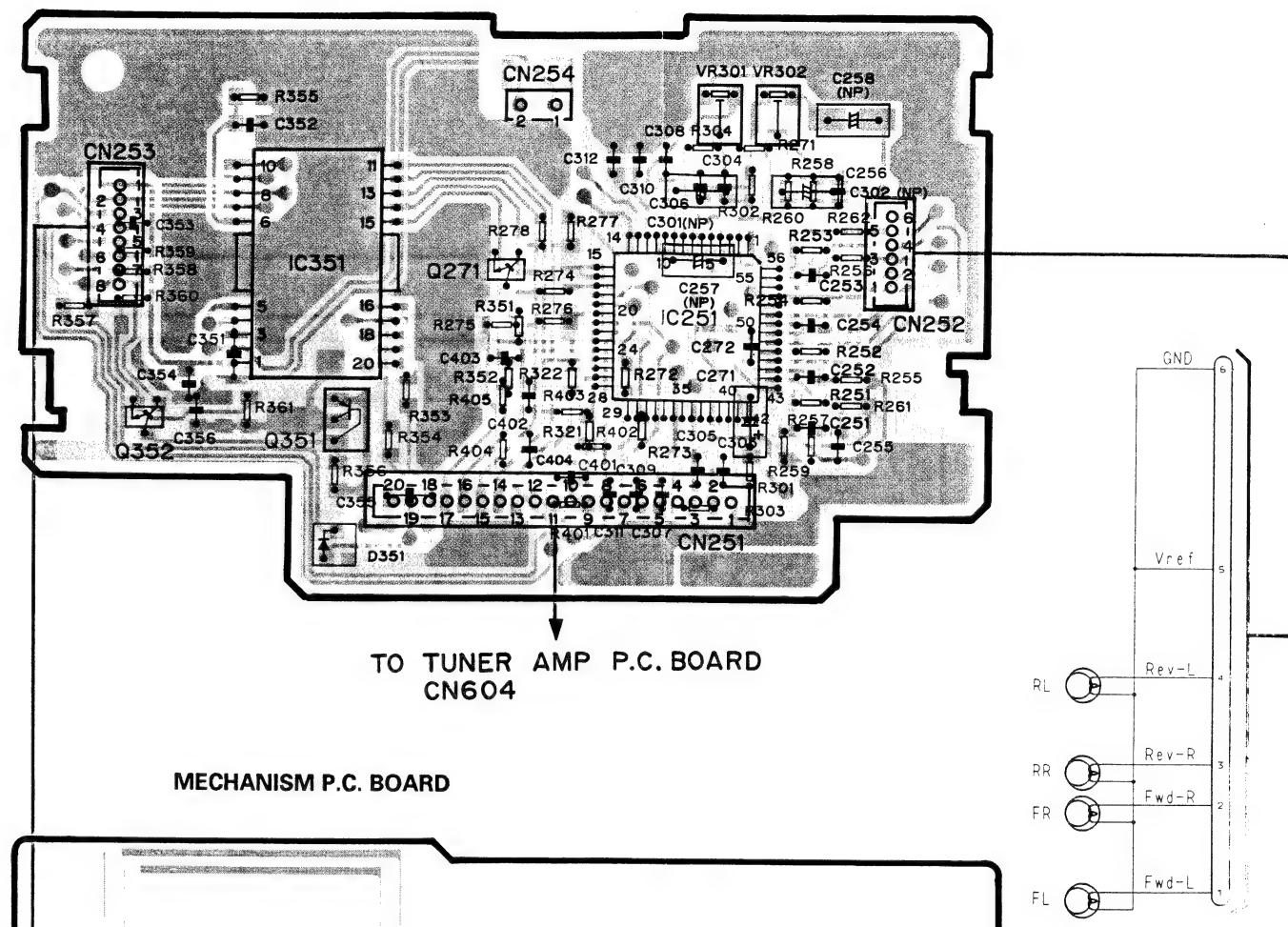
Q708 Q704 IC702
Q711 Q705 IC705
IC, Q Q710 Q706 IC704

Q703
Q709 IC703



TO TUNER AMP P.C. BOARD CN602

Fig. 32



TO TUNER AMP P.C. BOARD
CN604

MECHANISM P.C. BOARD

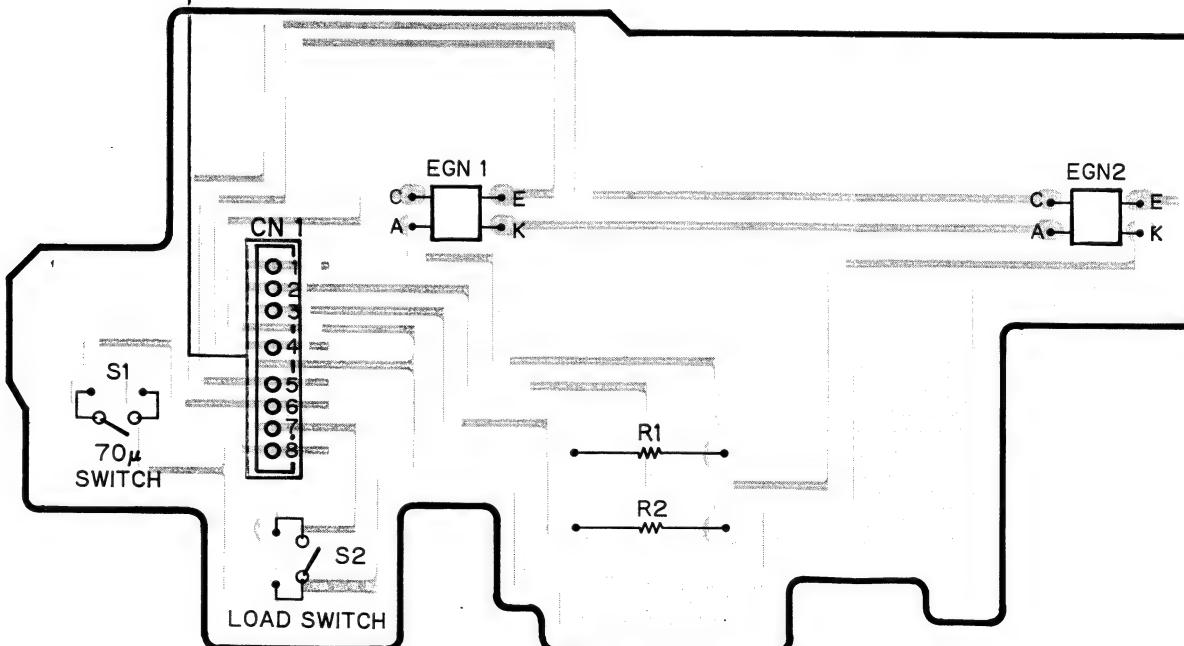


Fig. 33

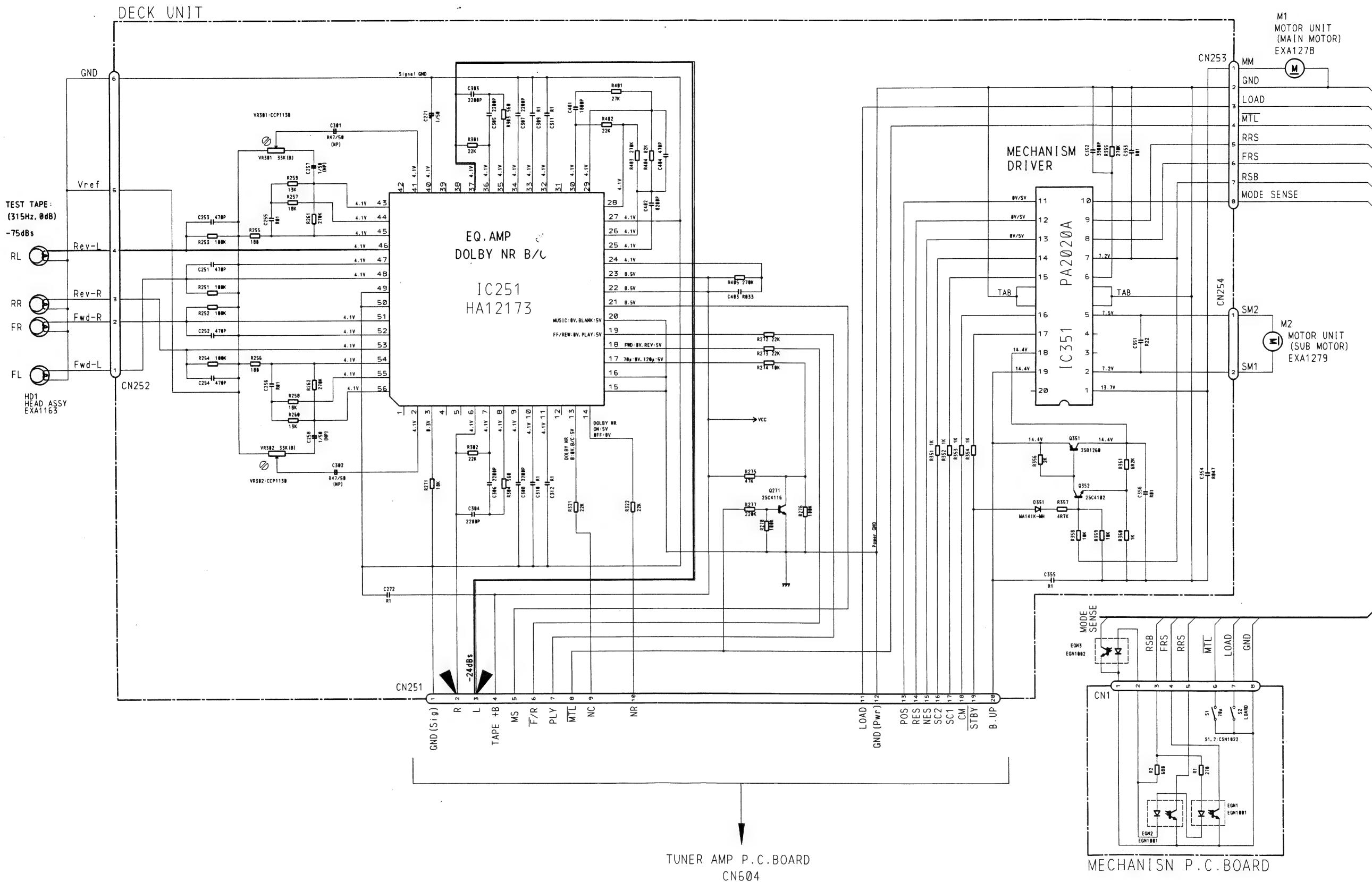
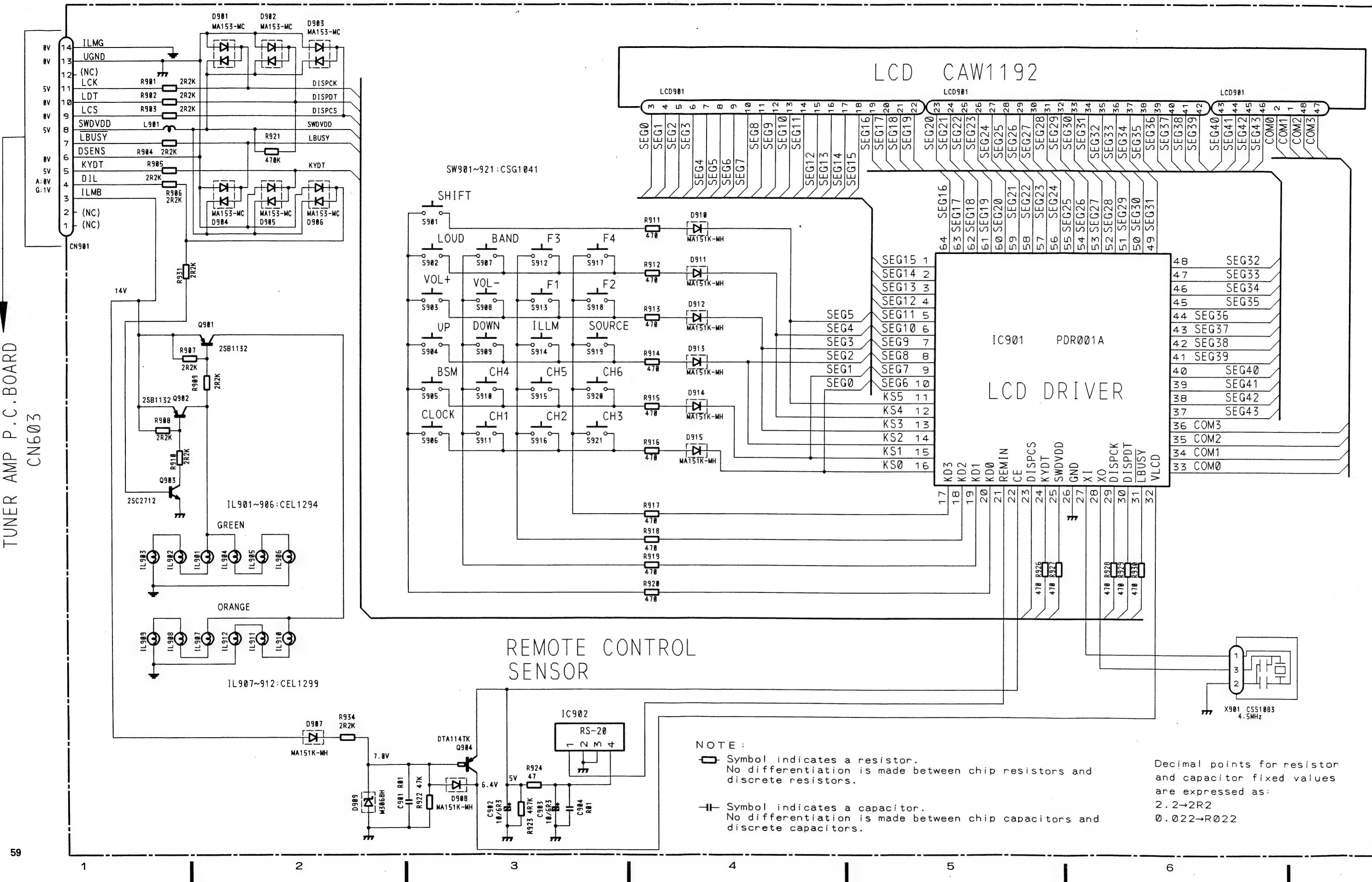


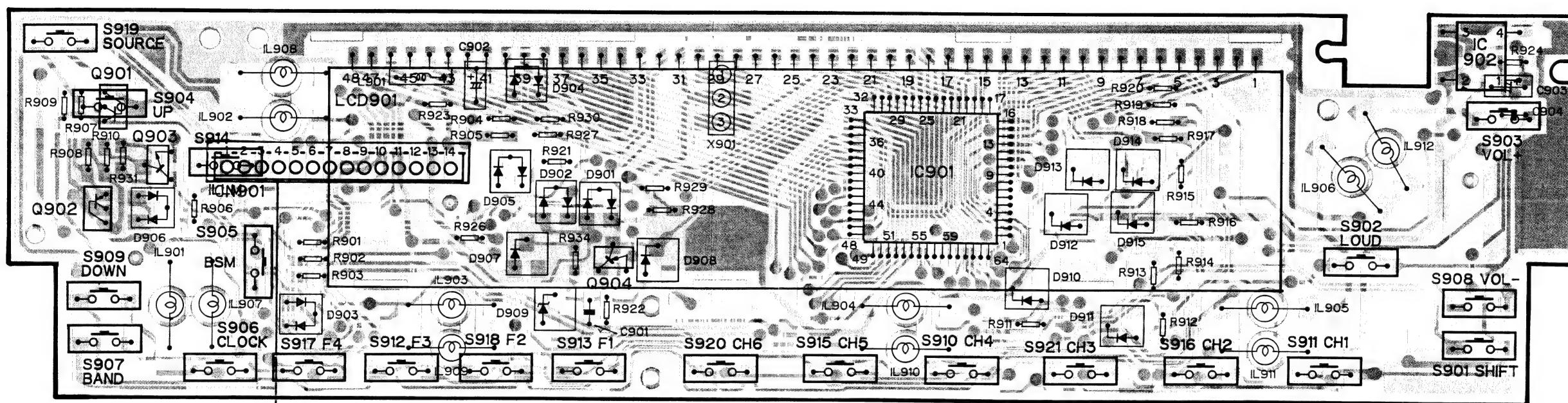
Fig. 34

16.5 KEY BOARD UNIT



A

Q901
IC. Q Q902 Q903 Q904 IC901 IC902



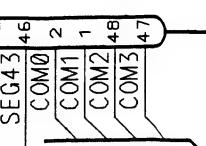
TO TUNER AMP P.C. BOARD
CN603

Fig. 36

D

Fig. 35

7 8 9 62 10 11 12



62
63
64
65
+0
+1
+2
+3



CSS1003

for resistor
fixed values
as:

B

17. EXPLODED VIEW

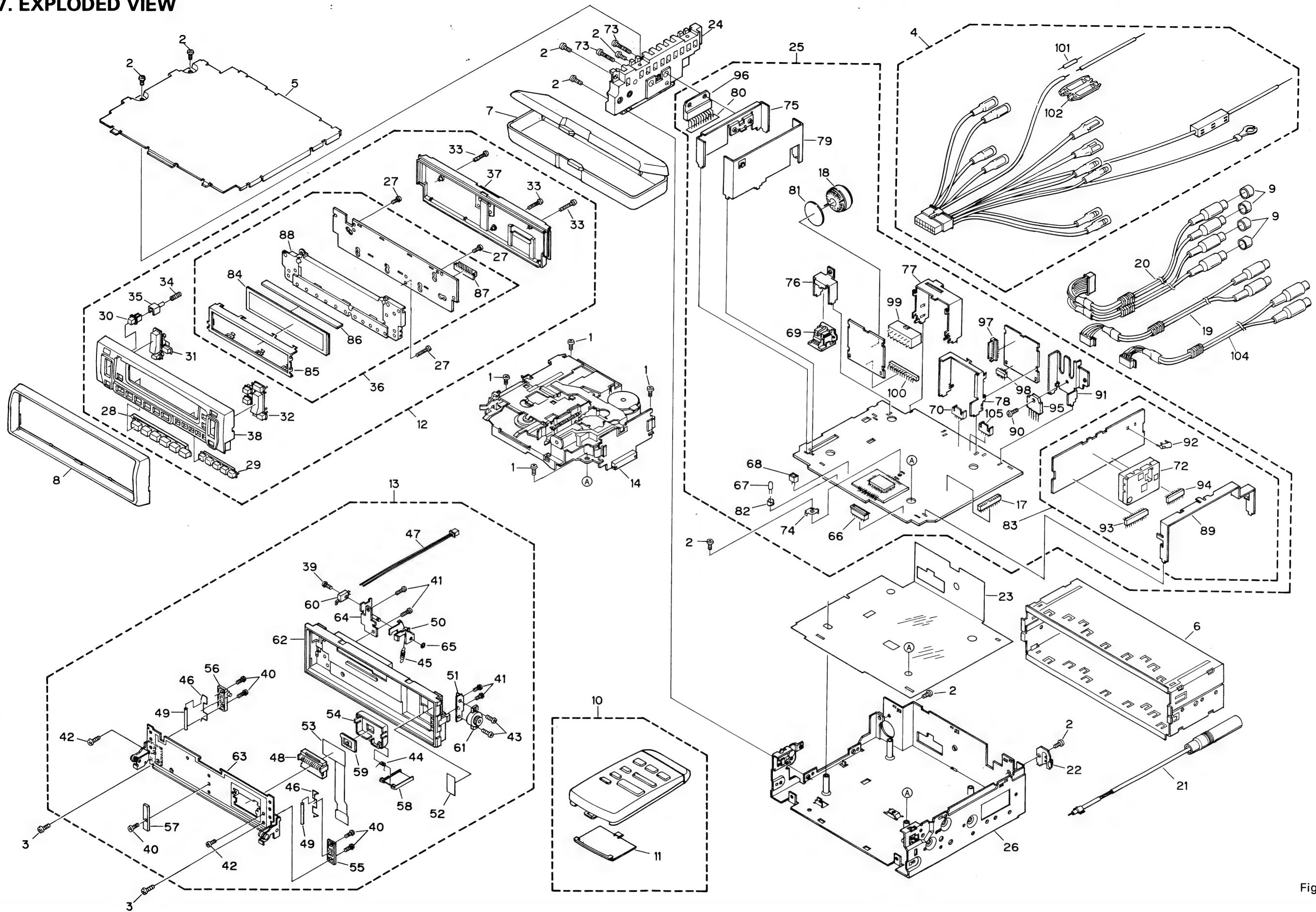


Fig. 37

1 2 3 4 5 6 64

● Parts List (KEH-M780/US)

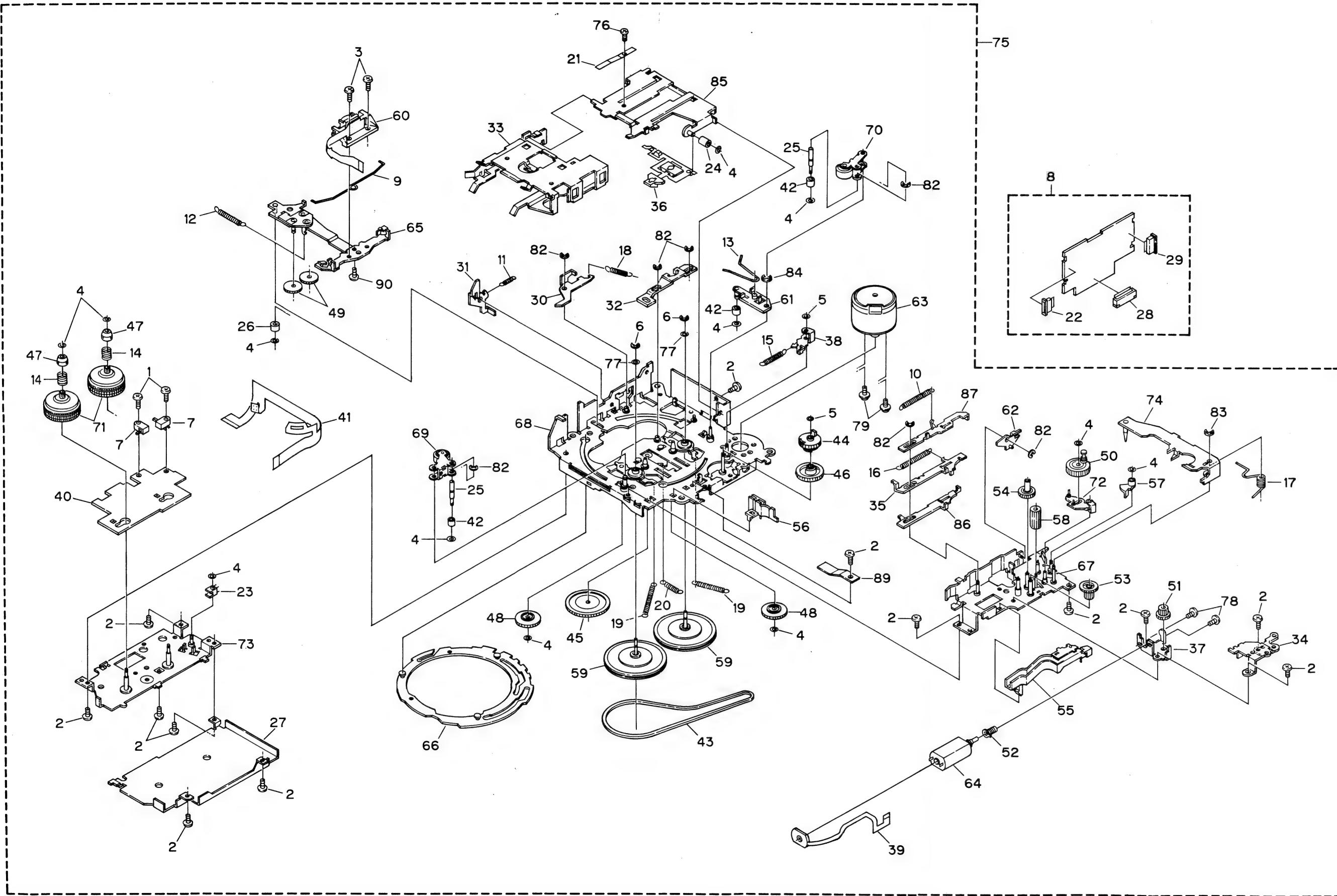
| A | Mark No. | Description | Part No. | Mark No. | Description | Part No. | Mark No. | Description | Part No. | |
|---|------------------------------|--------------|----------|----------------------|--------------|----------|---------------|--------------|-------------------|----------|
| | 1 Screw | BMZ26P050FMC | | 38 Grille Unit | CXA5138 | | * | 76 Holder | CNC4371 | |
| | 2 Screw | BMZ30P050FMC | | 39 Screw | CBA1070 | | * | 77 Holder | CNC4372 | |
| | 3 Screw | CBA1233 | | 40 Screw | CBA1082 | | * | 78 Holder | CNC4373 | |
| | 4 Cord Assy | CDE3768 | | 41 Screw | CBA1183 | | * | 79 Holder | CNC4374 | |
| | * 5 Case | CNB1636 | | 42 Screw | CBA1234 | | * | 80 Insulator | CNM3386 | |
| | 6 Holder | CNC1484 | | 43 Screw | CBA1235 | | * | 81 Insulator | CNM3634 | |
| | 7 Case | CNS2055 | | 44 Spring | CBH1217 | | 82 Holder | CNV1906 | | |
| | 8 Panel | CNS2599 | | 45 Spring | CBH1395 | ● | 83 FM/AM Unit | CWE1280 | | |
| | 9 Cap | CNV2680 | | 46 Spring | CBH1528 | | 84 LCD | CAW1192 | | |
| | 10 Remote Control Assy | CXA5364 | | * 47 Connector | CDE3294 | | * | 85 Holder | CNC4382 | |
| B | 11 Battery Cover | CNS2224 | | 48 Socket | CKS2293 | | 86 Spacer | CNM3626 | 101 Resistor | |
| | 12 Detach Grille Assy | CXA4939 | | 49 Roller | CLA2041 | | 87 Connector | CNV3252 | 102 Cap | |
| | 13 Panel Assy | CXA4950 | | 50 Arm | CNC4379 | | 88 Lens | CNV3473 | 103 Fuse(7A) | |
| ● | 14 Cassette Mechanism Module | EXK1930 | | 51 Holder | CNC4381 | | * | 89 Holder | CNC3506 | 104 Cord |
| | | | | 52 Cushion | CNM3640 | | 90 Screw | BMZ30P060FMC | * 105 Plug(CN702) | |
| | 15 | | | 53 P.C. Board | CNP3085 | | | | RS1/2P102JL | |
| | 16 | | | 54 Cover | CNS2502 | | | | CNS1472 | |
| | 17 Connector(CN604) | CKS1730 | | 55 Holder | CNV2141 | | | | CEK1023 | |
| | 18 Coil(L801) | CTH1107 | | 56 Holder | CNV3247 | | | | CDE3772 | |
| | 19 Cord | CDE3771 | | 57 Guide | CNV3248 | | | | CKS1733 | |
| | 20 Cord | CDE3774 | | 58 Door | CNV3249 | | | | | |
| | 21 Antenna Cable | CDH1117 | | 59 Rubber | CNV3272 | | | | | |
| | * 22 Holder | CNC2913 | | 60 Switch(Detach) | CSN-096 | | | | | |
| | * 23 Insulator | CNM3441 | | 61 Damper Unit | CXA4130 | | | | | |
| | * 24 Heat Sink | CNR1256 | | 62 Panel Unit | CXA4968 | | | | | |
| ● | 25 Tuner Amp Unit | CWM3190 | | 63 Holder Unit | CXA4969 | | | | | |
| | * 26 Chassis Unit | CXA5163 | | 64 Bracket Unit | CXA4971 | | | | | |
| | 27 Screw | BPZ20P060FMC | | 65 Washer | WT22D050D050 | | | | | |
| | 28 Button | CAC3312 | | 66 Connector(CN603) | CKS1260 | | | | | |
| | 29 Button | CAC3313 | | 67 Lamp(IL601) | CEL1025 | | | | | |
| | 30 Button | CAC3316 | | 68 Plug(CN605) | CKS-783 | | | | | |
| | 31 Button | CAC3491 | | 69 Connector(CN601) | CKS2105 | | | | | |
| | 32 Button | CAC3492 | | * 70 Plug(CN501) | CKS1224 | | | | | |
| | 33 Screw | CBA1190 | | 71 | | | | | | |
| | 34 Spring | CBH1476 | | 72 FM Front End(FE1) | CWB1065 | | | | | |
| D | 35 Lever | CNV3250 | | 73 Screw | BMZ30P140FMC | | | | | |
| ● | 36 Key Board Unit | CWM3201 | | * 74 Holder | CNC2218 | | | | | |
| | * 37 Cover Unit | CXA4973 | | * 75 Holder | CNC4370 | | | | | |

● The KEH-M8550/ES and KEH-M8500/US Parts Lists enumerate the parts which differ from those enumerated in the KEH-M780/US Parts List only. The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly. The KEH-M780/US Parts List is given on page 65.

| Mark No. | Description | KEH-M780/US | KEH-M8550/ES | KEH-M8500/US |
|------------------------|-------------|-------------|--------------|--------------|
| | | Part No. | Part No. | Part No. |
| 9 Cap | CNV2680 | CNV2680 | ..... |  |
| 10 Remote Control Assy | CXA5364 | CXA4026 | CXA5371 | |
| 12 Detach Grille Assy | CXA4939 | CXA4941 | CXA4940 | |
| 13 Panel Assy | CXA4950 | CXA4952 | CXA4951 | |
| 18 Coil(L801) | CTH1107 | CTH1107 | CTH1107 | |
| 19 Cord | CDE3771 | CDE3771 | CDE3846 | |
| 20 Cord | CDE3774 | CDE3774 | ..... |  |
| ● 25 Tuner Amp Unit | CWM3190 | CWM3192 | CWM3191 | |
| * 26 Chassis Unit | CXA5163 | CXA5163 | CXA5164 | |
| 31 Button | CAC3491 | CAC3383 | CAC3491 | |
| 32 Button | CAC3492 | CAC3384 | CAC3492 | |
| ● 36 Key Board Unit | CWM3201 | CWM3203 | CWM3202 | |
| 38 Grille Unit | CXA5138 | CXA5140 | CXA5139 | |
| * 78 Holder | CNC4373 | CNC4373 | ..... |  |
| * 97 Plug(CN703) | CKS1228 | CKS1228 | ..... |  |
| * 98 Plug(CN701) | CKS1615 | CKS1615 | ..... |  |
| 104 Cord | CDE3772 | CDE3772 | CDE3770 | |

18. CASSETTE MECHANISM MODULE EXPLODED VIEW

● 1L Mechanism



NOTES:
 ● Parts marked b
 ● Parts marked b they may be un
 ● Parts List

| Mark No. | Des |
|----------|-----|
| 1 | Scr |
| 2 | Scr |
| 3 | Scr |
| 4 | Wa |
| 5 | Wa |
| 6 | Wa |
| 7 | Sw |
| 8 | Dec |
| 9 | Spr |
| 10 | Spr |
| 11 | Spr |
| 12 | Spr |
| 13 | Spr |
| 14 | Spr |
| 15 | Spr |
| 16 | Spr |
| 17 | Spr |
| 18 | Spr |
| 19 | Spr |
| 20 | Spr |
| 21 | Spr |
| 22 | Cer |
| 23 | Plt |
| 24 | Rot |
| 25 | Sit |
| 26 | Rot |
| 27 | Cer |
| 28 | Cer |
| 29 | Cer |
| 30 | Ar |
| 31 | A |
| 32 | Lev |
| 33 | Hol |
| 34 | Cov |
| 35 | Lev |
| 36 | Lev |
| 37 | Bra |
| 38 | Arr |
| 39 | P.C |
| 40 | P.C |
| 41 | P.C |
| 42 | Rot |
| 43 | Bel |
| 44 | Ge |
| 45 | Ge |

Fig. 38

NOTES:

- Parts marked by " * " are generally unavailable because they are not in our Master Spare Parts List.
- Parts marked by " Ⓛ " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

A

● Parts List

| Mark | No. | Description | Part No. | Mark | No. | Description | Part No. |
|------|-----|-------------------|--------------|------|-----|-------------------|--------------|
| | 1 | Screw | BMZ20P060FMC | | 46 | Gear | ENV1348 |
| | 2 | Screw | BSZ20P040FMC | | 47 | Collar | ENV1349 |
| | 3 | Screw | CBA1015 | | 48 | Gear | ENV1350 |
| | 4 | Washe | CBF1037 | | 49 | Gear | ENV1351 |
| | 5 | Washer | CBF1038 | | 50 | Gear | ENV1354 |
| | 6 | Washer | CBG1003 | | 51 | Gear | ENV1355 |
| ⓘ | 7 | Switch | CSN1022 | | 52 | Gear | ENV1357 |
| | 8 | Deck Unit | CWM3114 | | 53 | Gear | ENV1358 |
| | 9 | Spring | EBH1458 | | 54 | Gear | ENV1359 |
| | 10 | Spring | EBH1434 | | 55 | Clamper | ENV1360 |
| B | 11 | Spring | EBH1435 | | 56 | Clamper | ENV1361 |
| | 12 | Spring | EBH1437 | | 57 | Arm | ENV1362 |
| | 13 | Spring | EBH1438 | | 58 | Gear | ENV1363 |
| | 14 | Spring | EBH1439 | | 59 | Flywheel | ENV1368 |
| | 15 | Spring | EBH1440 | | 60 | Head Assy | EXA1163 |
| | 16 | Spring | EBH1441 | | 61 | Arm Unit | EXA1276 |
| | 17 | Spring | EBH1442 | | 62 | Arm Unit | EXA1277 |
| | 18 | Spring | EBH1443 | | 63 | Motor Unit | EXA1278 |
| | 19 | Spring | EBH1446 | | 64 | Motor Unit | EXA1279 |
| | 20 | Spring | EBH1452 | | 65 | Head Base Unit | EXA1305 |
| | 21 | Spring | EBL1016 | | 66 | Gear Unit | EXA1281 |
| | 22 | Connector(CN252) | CKS2127 | | 67 | Guide Unit | EXA1282 |
| | 23 | Photo-Interrupter | EGN1002 | | 68 | Chassis Unit | EXA1283 |
| | 24 | Roller | ELA1281 | | 69 | Pinch Roller Unit | EXA1284 |
| | 25 | Shaft | ELA1282 | | 70 | Pinch Roller Unit | EXA1285 |
| C | 26 | Roller | ELA1283 | | 71 | Reel Unit | EXA1286 |
| | 27 | Cover | ENC1307 | | 72 | Arm Unit | EXA1287 |
| | 28 | Connector(CN251) | CKS1711 | | 73 | Sub Chassis Unit | EXA1288 |
| | 29 | Connector(CN253) | CKS2129 | | 74 | Arm Unit | EXA1289 |
| | 30 | Arm | ENC1310 | | 75 | Spare Unit | EXA1293 |
| | 31 | Arm | ENC1311 | | 76 | Screw | HBA-147 |
| | 32 | Lever | ENC1312 | | 77 | Washer | HBF-179 |
| | 33 | Holder | ENC1313 | | 78 | Screw | JGZ20P025FNI |
| | 34 | Cover | ENC1314 | | 79 | Screw | PMS20P025FMC |
| | 35 | Lever | ENC1315 | | 80 | ..... |  |
| | 36 | Lever | ENC1316 | | 81 | ..... |  |
| | 37 | Bracket | ENC1317 | | 82 | Washer | YE15FUC |
| | 38 | Arm | ENC1335 | | 83 | Washer | YE20FUC |
| | 39 | P.C.Board | ENP1109 | | 84 | Washer | YE25FUC |
| | 40 | P.C.Board | ENP1106 | | 85 | Frame Unit | EXA1290 |
| D | 41 | P.C.Board | ENP1107 | | 86 | Lever | ENC1308 |
| | 42 | Roller | ENR1023 | | 87 | Lever | ENC1309 |
| | 43 | Belt | ENT1014 | | 88 | ..... |  |
| | 44 | Gear | ENV1346 | | 89 | Spring | EBL1015 |
| | 45 | Gear | ENV1347 | | 90 | Screw | JFZ17P025FNI |

19. PACKING METHOD

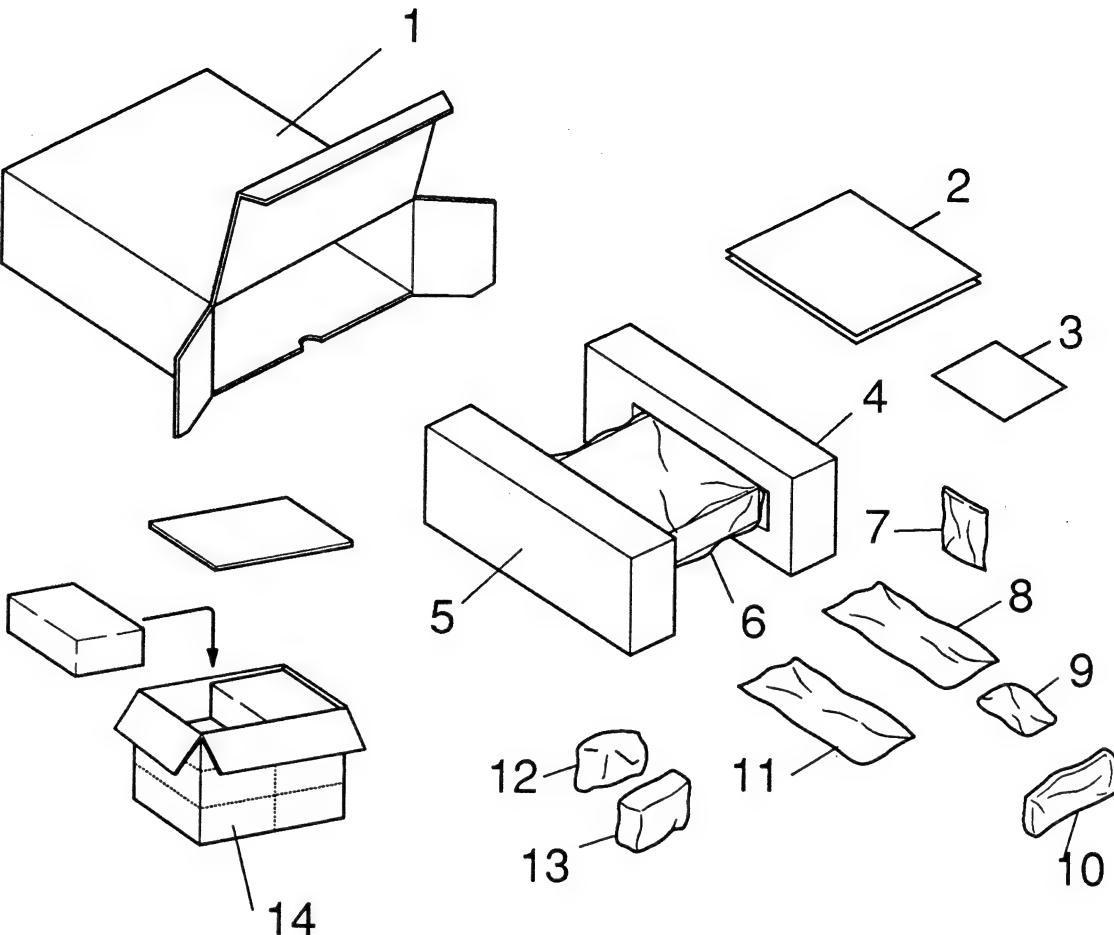


Fig. 39

● Parts List

*:Non spare part

| Mark No. | Description | KEH-M780/US | KEH-M8550/ES | KEH-M8500/US |
|----------|---------------------|-------------|--------------|--------------|
| Part No. | Part No. | Part No. | Part No. | |
| 1 | Carton | CHG2266 | CHG2268 | CHG2267 |
| 2-1 | Owner's Manual | CRB1258 | CRD1607 | CRB1259 |
| * 2-2 | Card | ..... | ..... | ARY1048 |
| * 3 | Warranty Card | CRY1053 | ..... | ..... |
| 4 | Protector | CHP1506 | CHP1506 | CHP1506 |
| 5 | Protector | CHP1505 | CHP1505 | CHP1505 |
| 6 | Cover | CEG1092 | CEG1092 | CEG1092 |
| 7 | Accessory Assy | CEA1473 | CEA1473 | CEA1473 |
| 8 | Cord Assy | CDE3768 | CDE3768 | CDE3768 |
| 9 | Screw Assy | CEA1761 | CEA1761 | CEA1761 |
| 10 | Case | CNS2055 | CNS2055 | CNS2055 |
| 11 | Accessory Assy | CEA1800 | CEA1800 | CEA1800 |
| 12 | Accessory Assy | CEA1784 | CEA1784 | CEA1784 |
| 13 | Remote Control Assy | CXA5364 | CXA4026 | CXA5371 |
| 14 | Contain Box | CHL2266 | ..... | CHL2267 |

| 7 Accessory Assy CEA1473 | | |
|--------------------------|------------------|----------|
| Mark No. | Description | Part No. |
| * 7-1 | Battery | CEX1006 |
| 7-2 | Fastener(Rough) | CNM3639 |
| 7-3 | Fastener(Soft) | CNM3630 |
| * 7-4 | Polyethylene Bag | CEG-127 |

| 9 Screw Assy CEA1761 | | |
|----------------------|------------------|--------------|
| Mark No. | Description | Part No. |
| 9-1 | Screw(×4) | BMZ50P080FMC |
| 9-2 | Screw | CBA-102 |
| 9-3 | Screw | CBA1002 |
| 9-4 | Screw(×4) | CMZ50P080FMC |
| 9-5 | Nut(×2) | NF50FMC |
| 9-6 | Polyethylene Bag | CEG-127 |

| 11 Accessory Assy CEA1800 | | |
|---------------------------|------------------|----------|
| Mark No. | Description | Part No. |
| 11-1 | Strap | CNF-111 |
| 11-2 | Bush | CNV1009 |
| * 11-3 | Polyethylene Bag | CEG-158 |

| 12 Accessory Assy CEA1784 | | |
|---------------------------|------------------|----------|
| Mark No. | Description | Part No. |
| 12-1 | Spring | CBH-865 |
| 12-2 | Handle(×2) | CNC4800 |
| * 12-3 | Polyethylene Bag | E36-613 |

| 2-1 Owner's Manual | | |
|--------------------|--------------|----------------------------------|
| Part No. | Model | Language |
| CRB1258 | KEH-M780/US | English |
| CRD1607 | KEH-M8550/ES | English, French, Spanish, Arabic |
| CRB1259 | KEH-M8500/US | English |

20. ELECTRICAL PARTS LIST

NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/□S□□□J, RS1/□□S□□□J

Chip Capacitor (except for CQS....)
CKS....., CCS....., CSZS.....

| Unit Number : | Unit Name : | Circuit Symbol & No. Part | Name | Part No. | Circuit Symbol & No. Part | Name | Part No. |
|--------------------|--------------------|---------------------------|---------------|----------|---------------------------|------|-------------|
| RESISTORS | | | | | | | |
| IC 51 | | | PA4019A | R 1 | | | RS1/16S562J |
| IC 201 | | | PAF001A | R 2 | 66 73 | | RS1/16S103J |
| Q 1 5 | | | DTC124EU | R 4 | | | RS1/16S102J |
| Q 2 10 131 132 203 | | | DTC124EU | R 5 | | | RS1/16S472J |
| Q 3 71 123 | | | 2SC4116 | R 6 | | | RS1/16S392J |
| Q 52 | | | 2SC4213 | R 7 | 8 9 | | RS1/16S0R0J |
| Q 126 | | | 2SC4116 | R 10 | | | RS1/16S472J |
| Q 201 | | | FC12(12G) | R 11 | | | RS1/10S0R0J |
| Q 202 | | | 2SC4116 | R 54 | | | RS1/10S562J |
| Q 231 | | | DTC124EU | R 56 | | | RS1/16S333J |
| D 201 204 | | | MA157-MR | R 57 | | | RS1/16S153J |
| D 205 | | | SVC203CP | R 58 | | | RS1/16S273J |
| L 1 | Inductor | | LCTA150K3225 | R 59 | 74 | | RS1/16S331J |
| L 51 | Inductor | | LCTA150K3225 | R 72 | | | RS1/16S123J |
| L 52 | Inductor | | LCTA220K3225 | R 75 | | | RS1/16S102J |
| L 71 | Inductor | | LCTB3R9K2125 | R 76 | | | RS1/16S221J |
| L 101 | Inductor | | LCTA102K4532 | R 101 | | | RS1/10S391J |
| L 201 | Coil | | CTB1086 | R 102 | 111 | | RS1/16S183J |
| L 202 | Coil | | CTB1082 | R 104 | 106 | | RS1/16S683J |
| L 203 | Inductor | | LCTB390K2125 | R 105 | | | RS1/16S392J |
| L 204 | Inductor | | LCTB680K2125 | R 108 | | | RS1/16S333J |
| L 205 | Inductor | | CTF1198 | R 121 | 149 | | RS1/16S104J |
| L 206 | Inductor | | CTF1197 | R 122 | | | RS1/16S124J |
| T 51 | Coil | | CTE1067 | R 123 | | | RS1/16S273J |
| T 52 | Coil | | CTE1068 | R 124 | 132 | | RS1/16S0R0J |
| T 71 | Coil | | CTE1058 | R 127 | 153 | | RS1/16S222J |
| T 203 | Coil | | CTB1087 | R 128 | | | RS1/16S103J |
| T 204 | Coil | | CTE1064 | R 129 | | | RS1/16S184J |
| T 205 | Coil | | CTE1060 | R 137 | | | RS1/16S223J |
| T 206 | Coil | | CTE1061 | R 142 | | | RS1/16S473J |
| TH 51 102 | Thermister | | DTN-T204D154K | R 143 | | | RS1/16S393J |
| CF 52 53 | Ceramic Filter | | CTF1247 | R 145 | | | RS1/16S0R0J |
| CF 201 | Crystal Filter | | CTF1262 | R 148 | | | RS1/10S222J |
| CF 202 | Ceramic Filter | | CTF1191 | R 151 | 152 | | RS1/16S222J |
| X 151 | Ceramic Resonator | | CSS1075 | R 201 | | | RS1/16S220J |
| X 201 | Crystal Resonator | | CSS1094 | R 202 | | | RS1/10S681J |
| VR 1 | Semi-fixed 22kΩ(B) | | CCP1183 | R 203 | | | RS1/16S222J |
| VR 51 101 102 | Semi-fixed 33kΩ(B) | | CCP1184 | R 204 | | | RS1/16S473J |
| AR 1 | Surge Protector | | DSP-141N | R 205 | 209 | | RS1/16S470J |
| FE 1 | FM Front End | | CWB1065 | R 207 | | | RS1/10S822J |
| | | | | R 211 | 212 236 237 238 | | RS1/16S103J |
| | | | | R 214 | | | RS1/16S182J |
| | | | | R 231 | | | RS1/16S823J |
| | | | | R 232 | | | RS1/10S102J |
| | | | | R 233 | | | RS1/16S222J |
| | | | | R 235 | | | RS1/16S104J |
| | | | | R 239 | | | RS1/16S392J |
| | | | | R 240 | | | RS1/16S473J |
| | | | | R 241 | 242 | | RS1/16S103J |
| | | | | R 243 | | | RS1/16S152J |
| | | | | R 244 | | | RS1/16S242J |
| | | | | R 249 | | | RS1/16S225J |

| Circuit | Symbol | & | No. | Part | Name | Part No. | Circuit | Symbol | & | No. | Part | Name | Part No. |
|-------------------------|--------|-----|-----|------|------|---------------|------------------------|--------|-----|-----|------|------|--------------|
| CAPACITORS | | | | | | | | | | | | | |
| C | 1 | 111 | 125 | | | CEV100M16 | R | 251 | 252 | 253 | 254 | | RS1/10S104J |
| C | 2 | 51 | 59 | | | CKSRYF473Z25 | R | 255 | 256 | | | | RS1/10S181J |
| C | 5 | | | | | CKSQYB472K50 | R | 257 | 258 | | | | RS1/10S183J |
| C | 52 | 53 | 61 | | | CKSRYB223K25 | R | 259 | 260 | | | | RS1/10S133J |
| C | 54 | | | | | CCSQCH101J50 | R | 261 | 262 | | | | RS1/10S274J |
| C | 56 | | | | | CKSRYF104Z25 | R | 271 | | | | | RS1/10S183J |
| C | 57 | | | | | CSZSR33M25 | R | 272 | 273 | 321 | 322 | | RS1/10S223J |
| C | 58 | | | | | CCSRRCH070D50 | R | 274 | | | | | RS1/10S103J |
| C | 60 | | | | | CEVNP100M10 | R | 275 | | | | | RS1/10S473J |
| C | 62 | | | | | CCSRPH820J50 | R | 276 | 278 | | | | RS1/10S104J |
| C | 63 | | | | | CCSRPH470J50 | R | 277 | | | | | RS1/10S224J |
| C | 72 | 73 | 80 | 104 | | CKSRYB103K50 | R | 301 | 302 | 402 | | | RS1/10S223J |
| C | 74 | 129 | 158 | | | CKSRYF473Z25 | R | 303 | 304 | | | | RS1/10S561J |
| C | 101 | | | | | CKSRYB332K50 | R | 351 | 352 | | | | RS1/10S102J |
| C | 102 | | | | | CKSRYB682K50 | R | 353 | 354 | | | | RS1/10S102J |
| C | 103 | | | | | CKSQYB272K50 | R | 355 | | | | | RS1/10S274J |
| C | 105 | 127 | | | | CEV4R7M35 | R | 356 | | | | | RS1/10S202J |
| C | 106 | | | | | CEVR47M50 | R | 357 | | | | | RS1/10S472J |
| C | 107 | 108 | | | | CKSRYB222K50 | R | 358 | 359 | | | | RS1/10S103J |
| C | 110 | | | | | CKSYB224K25 | R | 360 | | | | | RS1/10S102J |
| C | 112 | | | | | CKSYB473K50 | R | 361 | | | | | RS1/10S622J |
| C | 122 | | | | | CKSYB104K50 | R | 401 | | | | | RS1/10S273J |
| C | 123 | | | | | CKSYB103K50 | R | 403 | 405 | | | | RS1/10S274J |
| C | 124 | 132 | 153 | | | CSZSR47M20 | R | 404 | | | | | RS1/10S823J |
| C | 128 | | | | | CKSRYB223K25 | | | | | | | |
| C | 131 | | | | | CCSRRCH820J50 | | | | | | | |
| C | 151 | 152 | | | | CKSQYB393K25 | C | 251 | 252 | 253 | 254 | | CKSQYB471K50 |
| C | 154 | 155 | 156 | | | CEV3R3M50 | C | 255 | 256 | 353 | | | CKSQYB103K50 |
| C | 157 | | | | | CEV101M10 | C | 257 | 258 | | | | CEVNP010M50 |
| C | 201 | 216 | 241 | | | CKSRYB103K50 | C | 271 | | | | | CEV010M50 |
| C | 202 | 212 | | | | CKSRYB332K50 | C | 272 | | | | | CKSQYB104K25 |
| C | 203 | | | | | CSZSR3M10 | C | 301 | 302 | | | | CEVNPR47M50 |
| C | 204 | | | | | CKSQYB223K25 | C | 303 | 304 | 305 | 306 | 307 | CKSQYB222J50 |
| C | 205 | 221 | | | | CCSRRCH120J50 | C | 309 | 310 | 311 | 312 | | CKSQYB104K25 |
| C | 206 | | | | | CCSRCH560J50 | C | 351 | | | | | CKSQYB224K25 |
| C | 207 | | | | | CCSRCH680J50 | C | 352 | | | | | CKSQYB392K50 |
| C | 208 | | | | | CKSRYB223K25 | C | 354 | | | | | CKSQYB473K50 |
| C | 210 | | | | | CKSQYB103K50 | C | 355 | | | | | CKSYB104K50 |
| C | 211 | 235 | | | | CEVR47M50 | C | 356 | | | | | CKSQYB103K50 |
| C | 213 | | | | | CCSQCH330J50 | C | 401 | | | | | CKSQYB182K50 |
| C | 215 | | | | | CKSRYF473Z25 | C | 402 | | | | | CKSQYB822K50 |
| C | 220 | | | | | CCSRCH430J50 | C | 403 | | | | | CKSQYB333K50 |
| C | 224 | 229 | | | | CEV470M16 | C | 404 | | | | | CKSQYB471K50 |
| C | 225 | | | | | CKSQYB333K25 | | | | | | | |
| C | 226 | | | | | CKSQYB473K25 | | | | | | | |
| C | 231 | | | | | CCSRRCH100D50 | | | | | | | |
| C | 232 | 234 | 244 | | | CKSRYB103K50 | | | | | | | |
| C | 233 | | | | | CKSRYF473Z25 | | | | | | | |
| C | 236 | | | | | CKSYB104K50 | | | | | | | |
| C | 237 | | | | | CEV4R7M35 | | | | | | | |
| C | 238 | | | | | CEV3R3M50 | | | | | | | |
| C | 239 | | | | | CKSRYB223K25 | | | | | | | |
| C | 242 | | | | | CCSRRCH030C50 | | | | | | | |
| MISCELLANEOUS | | | | | | | | | | | | | |
| IC | 251 | | | | | HA12173 | Tuner Amp Unit | | | | | | |
| IC | 351 | | | | | PA2020A | Consists of | | | | | | |
| Q | 271 | | | | | 2SC4116 | Tuner Amp P.C.Board | | | | | | |
| Q | 351 | | | | | 2SB1260 | Power Filter P.C.Board | | | | | | |
| Q | 352 | | | | | 2SC4102 | Isolator P.C.Board | | | | | | |
| D | 351 | | | | | MA141K-MH | | | | | | | |
| VR | 301 | 302 | | | | CCP1130 | | | | | | | |
| Unit Number : Deck Unit | | | | | | | | | | | | | |
| MISCELLANEOUS | | | | | | | | | | | | | |
| IC | 451 | | | | | | IC 451 | | | | | | LC72140M |
| IC | 501 | | | | | | IC 501 | | | | | | PMJ002A |
| IC | 502 | 702 | 703 | 704 | 705 | | IC 502 | 702 | 703 | 704 | 705 | | NJM4558M |
| IC | 503 | | | | | | IC 503 | | | | | | NJM4558M |
| IC | 504 | | | | | | IC 504 | | | | | | TC9188F1 |
| IC | 505 | 506 | | | | | IC 505 | 506 | | | | | NJM2082M |
| IC | 507 | 509 | | | | | IC 507 | 509 | | | | | NJM2068MD1 |
| IC | 508 | | | | | | IC 508 | | | | | | TC4052BF |
| IC | 510 | | | | | | IC 510 | | | | | | PA3027A |
| IC | 601 | | | | | | IC 601 | | | | | | PML001A |

| Circuit | Symbol & No. | Part Name | Part No. | Circuit | Symbol & No. | Part Name | Part No. |
|---|-------------------------|--------------|-------------|---------|-------------------------------------|--------------------|-------------|
| IC 602 | | TA8214K | | R 477 | | | RS1/10S472J |
| IC 603 | | S-80734AN-DY | | R 479 | 515 516 | | RS1/10S333J |
| IC 604 | | PD4411A | | R 485 | 486 487 488 | | RS1/10S272J |
| IC 701 | | NJM4558M | | R 489 | 490 | | RS1/10S104J |
| Q 421 422 | | DTC143TK | | R 491 | 492 | | RS1/10S103J |
| Q 423 424 461 462 | 801 802 | DTC143TK | | R 493 | | | RS1/10S563J |
| Q 452 454 | | 2SK208 | | R 496 | | | RS1/10S182J |
| Q 453 456 457 458 | 601 | 2SC2712 | | R 497 | | | RS1/10S821J |
| Q 455 602 606 610 | 703 704 705 706 708 | 2SC2712 | | R 498 | | | RS1/10S101J |
| Q 464 | | 2SC2498 | | R 499 | 505 506 604 | | RS1/10S101J |
| Q 501 502 | | DTC314TK | | R 501 | 502 | | RS1/10S563J |
| Q 503 612 620 | | DTA124EK | | R 507 | 508 | | RS1/10S151J |
| Q 504 615 616 | | DTC124EK | | R 509 | | | RS1/10S152J |
| Q 505 | | 2SD1684 | | R 512 | | | RS1/10S183J |
| Q 603 | | 2SD1760F5 | | R 517 | | | RS1/10S103J |
| Q 604 | | 2SC3295 | | R 525 | 526 527 528 | | RS1/10S271J |
| Q 605 617 | | 2SB1243 | | R 533 | 534 535 560 561 565 605 | | RS1/10S472J |
| Q 607 | | DTB123EK | | R 537 | 538 539 540 541 542 721 722 723 | | RS1/10S104J |
| Q 608 609 613 | | DTC124EK | | R 543 | | | RS1/10S105J |
| Q 611 614 | | 2SA1162 | | R 544 | 545 612 613 617 671 | | RS1/10S103J |
| Q 622 | | 2SC3295 | | R 548 | 549 | | RS1/10S105J |
| Q 701 | | DTC314TK | | R 550 | 551 | | RS1/10S153J |
| Q 702 | | DTC314TK | | R 552 | 553 611 648 862 | | RS1/10S223J |
| Q 709 710 711 | | 2SC2712 | | R 554 | 555 | | RS1/10S821J |
| D 451 452 | | MA3027H | | R 556 | 557 601 606 621 | | RS1/10S223J |
| D 453 454 455 | | MA151WK-MT | | R 566 | 567 568 569 570 571 572 573 | | RS1/10S2R2J |
| D 501 | | MA3047M | | R 595 | | | RS1/10S331J |
| D 502 503 504 505 506 507 508 509 604 | | ERA15-02VH | | R 596 | 619 666 690 691 858 | | RS1/10S102J |
| D 511 | | MA3091L | | R 597 | | | RS1/10S181J |
| D 601 | | MA3082L | | R 609 | | | RS1/10S183J |
| D 603 | | MA3075H | | R 610 | 670 | | RS1/2S681J |
| D 605 609 | | MA151WK-MT | | R 614 | | | RS1/10S221J |
| D 606 | | MA3056M | | R 623 | 624 625 626 693 | | RS1/10S221J |
| D 610 | | MA3082H | | R 628 | 629 630 631 | | RS1/10S682J |
| D 611 612 613 614 615 616 617 618 619 620 | | MA153-MC | | R 632 | 633 634 635 636 725 | | RS1/10S471J |
| D 621 622 623 624 | | MA153-MC | | R 637 | | | RS1/10S124J |
| D 625 629 | | MA110-1A | | R 640 | 642 | | RS1/10S473J |
| D 627 | | MA8062M | | R 644 | | | RS1/10S473J |
| D 640 641 642 643 | | ERA15-02VH | | R 646 | | | RS1/10S683J |
| L 451 452 601 602 603 | Ferri-Inductor | LAU2R2M | | R 650 | 651 652 653 | | RS1/10S681J |
| L 701 702 703 704 | Ferri-Inductor | LAU2R2M | | R 654 | 655 656 657 658 659 660 661 662 663 | RS1/10S472J | |
| L 453 | Ferri-Inductor | CTF-157 | | R 673 | 674 675 680 681 682 683 684 | RS1/10S472J | |
| L 801 | Coil | CTH1107 | | R 664 | 665 765 766 767 768 | RS1/10S473J | |
| TC 601 | Trimmer | CCG1002 | | R 667 | | | RS1/10S472J |
| X 451 | Crystal Resonator | CSS1030 | | R 668 | | | RS1/10S0R0J |
| X 601 | Crystal Resonator | CSS1023 | | R 677 | 678 | | RS1/10S472J |
| S 601 | Switch(RESET) | CSG1046 | | R 679 | | | RS1/10S473J |
| S 602 | Switch(MAIN IN) | CSH1009 | | R 685 | 686 694 695 696 761 762 | | RS1/10S472J |
| IL 601 | Lamp 14V 40mA | CEL1025 | | R 688 | 689 699 711 764 854 | | RS1/10S473J |
| EF 601 | Filter | CCG1006 | | R 701 | 702 | | RS1/10S224J |
| BZ 601 | Buzzer | CPV1011 | | R 703 | 704 709 | | RS1/10S223J |
| | FM/AM Unit | | | R 705 | 706 | | RS1/10S153J |
| | | | | R 707 | 708 | | RS1/10S821J |
| | | | | R 710 | | | RS1/10S223J |
| | | | | R 717 | | | RS1/10S100J |
| R 421 422 423 424 | | | RS1/10S392J | | | | |
| R 425 426 503 504 | | | RS1/10S272J | | | | |
| R 427 428 615 | | | RS1/10S153J | | | | |
| R 451 452 453 459 | 481 482 536 603 608 627 | RS1/10S473J | | R 724 | | | RS1/10S104J |
| R 454 455 456 462 | | RS1/10S222J | | R 726 | 727 728 729 730 731 732 | | RS1/10S471J |
| R 457 463 474 475 | 649 669 | RS1/10S222J | | R 733 | 734 735 736 | | RS1/10S154J |
| R 458 464 466 483 | 484 574 | RS1/10S102J | | R 737 | 738 739 740 | | RS1/10S334J |
| R 460 602 607 620 | 639 647 | RS1/10S473J | | R 749 | 750 751 752 | | RS1/10S123J |
| R 465 480 495 510 | 513 514 564 618 672 676 | RS1/10S472J | | R 753 | 754 755 756 | | RS1/10S103J |
| R 467 | | RS1/10S152J | | R 758 | 770 782 786 | | RS1/10S123J |
| R 468 478 616 | | RS1/10S103J | | R 759 | 771 783 787 | | RS1/10S562J |
| R 469 | | RS1/10S102J | | R 760 | 772 | | RS1/10S331J |
| R 470 471 638 687 | 700 | RS1/10S102J | | R 763 | | | RS1/10S0R0J |
| R 472 | | RS1/10S102J | | R 769 | 773 781 784 785 788 | | RS1/10S331J |
| R 473 | | RS1/10S102J | | R 774 | 775 776 777 | Chip Resistor 100Ω | CCN1072 |
| | | | | R 779 | | | RS1/10S102J |
| | | | | R 801 | 802 | | RS1/10S393J |
| | | | | R 803 | 804 | | RS1/10S392J |

| Circuit Symbol & No. Part | | | | Name | Part No. | Circuit Symbol & No. Part | | | | Name | Part No. | | | | | | |
|---------------------------|-----|-----|------------------------------|------|--------------|---------------------------------|---------------------|-----|-----|------------------------|--------------|--------------|-----|---------|--------|--|---------|
| R 805 | 806 | | | | RS1/10S273J | C 701 | 702 | | | | CCSQCH101J50 | | | | | | |
| R 856 | | | | | RS1/10S102J | C 703 | 704 | | | | CEA220M16LS | | | | | | |
| R 861 | | | | | RS1/10S473J | C 705 | | | | | CKSQYB102K50 | | | | | | |
| R 873 | | | | | RS1/10S102J | C 706 | | | | | CKSQYB102K50 | | | | | | |
| R 880 | 881 | 882 | 883 | | RS1/10S101J | C 729 | | | | | CEV010M50 | | | | | | |
| R 885 | | | | | RS1/10S0R0J | C 730 | 731 | 732 | | | CEA010M50LS2 | | | | | | |
| R 886 | | | | | RS1/10S472J | C 739 | | | | | CEA330M10LS | | | | | | |
| | | | | | | C 741 | 742 | 743 | 744 | | CEA100M16LS2 | | | | | | |
| CAPACITORS | | | | | | | | | | | | | | | | | |
| C 421 | 422 | | | | CEAS4R7M35 | Unit Number : | | | | | | | | | | | |
| C 451 | 452 | | | | CCSQCH270J50 | Unit Name : | Key Board Unit | | | | | | | | | | |
| C 453 | 471 | 537 | 538 | 566 | 567 | 614 | 633 | 636 | 640 | | CCSQCH101J50 | | | | | | |
| C 454 | 592 | 603 | | | | CEA4R7M16LS2 | | | | | CEA220M16LS | | | | | | |
| C 455 | 458 | 461 | 506 | 643 | 717 | 718 | 719 | 720 | | | CKSQYB103K25 | | | | | | |
| C 457 | | | 4.7 μ F/16V | | CCH1005 | IC 901 | | | | | PDR001A | | | | | | |
| C 459 | | | Chip Capacitor 0.047 μ F | | CCG1008 | IC 902 | | | | | RS-20 | | | | | | |
| C 460 | | | | | CFNA474J50 | Q 901 | 902 | | | | 2SB1132 | | | | | | |
| C 462 | | | | | CCSQSL561J50 | Q 903 | | | | | 2SC2712 | | | | | | |
| C 463 | 464 | 559 | 855 | | CKSQYB223K25 | Q 904 | | | | | DTA114TK | | | | | | |
| C 465 | | | | | CCSQCH101J50 | D 901 | 902 | 903 | 904 | 905 | 906 | | | | | | |
| C 467 | 468 | | | | CEAS2R2M50 | D 907 | 908 | 910 | 911 | 912 | 913 | MA153-MC | | | | | |
| C 469 | 520 | 601 | 613 | | CKSQYB103K25 | D 909 | | | | | | MA151K-MH | | | | | |
| C 470 | 632 | | | | CCSQCH101J50 | L 901 | | | | | | MA3068H | | | | | |
| C 501 | 502 | | | | CEA4R7M16LS2 | X 901 | | | | | | LCTA100K4532 | | | | | |
| C 503 | 504 | | | | CCSQCH220J50 | S 901 | 902 | 903 | 904 | Switch | | CSG1041 | | | | | |
| C 505 | 510 | 542 | 543 | 612 | CEA2R2M50LS2 | S 905 | 906 | 907 | 908 | Switch | | CSG1041 | | | | | |
| C 507 | 508 | 509 | 514 | 515 | 518 | 519 | 553 | 554 | 590 | CEA100M16LS2 | S 909 | 910 | 911 | 912 | Switch | | CSG1041 |
| C 511 | | | | | CEA470M16LS | S 913 | 914 | 915 | 916 | Switch | | CSG1041 | | | | | |
| C 516 | 517 | | | | CKSQYB822K50 | S 917 | 918 | 919 | 920 | Switch | | CSG1041 | | | | | |
| C 521 | 522 | | | | CKSQYB183K25 | S 921 | | | | Switch | | CSG1041 | | | | | |
| C 523 | | | | | CCSQCH221J50 | IL 901 | 902 | 903 | 904 | Lamp 115mA 5V | | CEL1294 | | | | | |
| C 524 | | | | | CCSQSL221J50 | IL 905 | 906 | | | Lamp 115mA 5V | | CEL1294 | | | | | |
| C 525 | 526 | | | | CKSQYB152K50 | IL 907 | 908 | 909 | 910 | Lamp 95mA 5V | | CEL1299 | | | | | |
| C 527 | 528 | 602 | 607 | 609 | 721 | 722 | 723 | 724 | | IL 911 | 912 | Lamp 95mA 5V | | CEL1299 | | | |
| C 529 | 530 | | | | CKSQYF224Z25 | LCD901 | | | | LCD | | CAW1192 | | | | | |
| C 531 | 532 | | | | CKSQYB332K50 | | | | | | | | | | | | |
| C 533 | 534 | | | | CEALNP2R2M35 | RESISTORS | | | | | | | | | | | |
| C 535 | 536 | | | | CKSQYB333K25 | R 901 | 902 | 903 | 904 | Switch | | CSG1041 | | | | | |
| C 539 | 540 | | | | CEA100M16LS2 | R 905 | 906 | 907 | 908 | Switch | | CSG1041 | | | | | |
| C 541 | | | | | CKSYF104Z25 | R 909 | 910 | 911 | 912 | Switch | | CSG1041 | | | | | |
| C 552 | 561 | 568 | 569 | | CEA220M16LS | IL 901 | 902 | 903 | 904 | Lamp 115mA 5V | | CEL1294 | | | | | |
| C 555 | | | | | CKSQYB273K25 | IL 905 | 906 | | | Lamp 115mA 5V | | CEL1294 | | | | | |
| C 556 | 604 | 610 | | | CKSQYB473K16 | IL 907 | 908 | 909 | 910 | Lamp 95mA 5V | | CEL1299 | | | | | |
| C 557 | 560 | | | | CKSQYB123K50 | IL 911 | 912 | | | Lamp 95mA 5V | | CEL1299 | | | | | |
| C 558 | | | | | CKSQYB682K50 | S 924 | | | | | | RS1/10S470J | | | | | |
| C 570 | 571 | 801 | 802 | | CKSQYB102K50 | R 926 | 927 | 928 | 929 | 930 | | RS1/10S471J | | | | | |
| C 572 | 573 | 576 | 577 | | CEALNP4R7M16 | R 931 | | | | | | RS1/10S222J | | | | | |
| C 574 | 579 | | | | CKSQYB682K50 | R 934 | | | | | | RS1/10S222J | | | | | |
| C 575 | | | | | CKSQYB682K50 | | | | | | | | | | | | |
| C 578 | | | | | CKSQYB682K50 | C 901 | 904 | | | | | CKSQYB103K25 | | | | | |
| C 580 | 581 | 582 | 583 | 584 | 585 | 586 | 587 | | | C 902 | 903 | CSZSR100M6R3 | | | | | |
| C 588 | | | | | | | | | | | | | | | | | |
| C 591 | | | | | | Unit Number : | | | | | | | | | | | |
| C 593 | | | | | | Unit Name : | Mechanism P.C.Board | | | | | | | | | | |
| C 594 | 596 | 631 | 634 | | CEA100M16LS2 | S 1 | 2 | | | Switch(70 μ ,Load) | | CSN1022 | | | | | |
| C 597 | | | | | CEA4R7M16LS2 | EGN 1 | 2 | | | Photo Reflector | | EGN1001 | | | | | |
| C 598 | 599 | | | | CKSYB102K50 | R 1 | | | | | | RD1/4HM271J | | | | | |
| C 605 | | | | | CCSQCH330J50 | R 2 | | | | | | RD1/4HM681J | | | | | |
| C 606 | | | 33 μ F/10V | | CCH1128 | | | | | | | | | | | | |
| C 608 | | | | | CEA470M16LS | Miscellaneous Parts List | | | | | | | | | | | |
| C 611 | | | | | CEAS101M10 | S 600 | | | | Switch(Detach) | | CSN-096 | | | | | |
| C 615 | | | | | CASAQ4R7M10 | HD 1 | | | | Head Assy | | EXA1163 | | | | | |
| C 616 | | | | | CCSQCH330J50 | M 1 | | | | Motor Unit(Main) | | EXA1278 | | | | | |
| C 635 | | | | | CEAS102M16 | M 2 | | | | Motor Unit(Sub) | | EXA1279 | | | | | |
| C 641 | | | | | CCSQCH101J50 | | | | | | | | | | | | |
| C 642 | | | | | CEHAQ102M16 | | | | | | | | | | | | |
| C 644 | | | | | CKSQYB473K25 | | | | | | | | | | | | |
| C 650 | | | 3300 μ F/16V | | CCH1130 | | | | | | | | | | | | |
| C 651 | | | | | CKSQYB102K50 | | | | | | | | | | | | |

- The KEH-M8550/ES and KEH-M8500/US Parts Lists enumerate the parts which differ from those enumerated in the KEH-M780/US Parts List only.
- The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly.
- The KEH-M780/US Parts List is given on page 73.

MISCELLANEOUS

| Circuit Symbol & No. | KEH-M780/US | KEH-M8550/ES | KEH-M8500/US |
|----------------------|-------------|--------------|--------------|
| | Part No. | Part No. | Part No. |
| IC507 | NJM2068MD1 | NJM2068MD1 | ..... |
| IC508 | TC4052BF | TC4052BF | ..... |
| IC509 | NJM2068MD1 | NJM2068MD1 | NJM4558M |
| Q505 | 2SD1684 | 2SD1684 | 2SD1859 |
| S602 | CSH1009 | CSH1009 | ..... |
| L801 | CTH1107 | CTH1103 | CTH1103 |
| IC702, 703, 704, 705 | NJM4558M | NJM4558M | ..... |
| Q703, 704, 705, 706 | 2SC2712 | 2SC2712 | ..... |
| Q708, 709, 710, 711 | 2SC2712 | 2SC2712 | ..... |
| L701, 702, 703, 704 | LAU2R2M | LAU2R2M | ..... |

RESISTORS

| Circuit Symbol & No. | KEH-M780/US | KEH-M8550/ES | KEH-M8500/US |
|----------------------|-------------|--------------|--------------|
| | Part No. | Part No. | Part No. |
| R515, 516 | RS1/10S333J | RS1/10S333J | ..... |
| R529, 530, 531, 532 | ..... | ..... | RS1/10S0R0J |
| R536 | RS1/10S473J | RS1/10S473J | ..... |
| R537-542 | RS1/10S104J | RS1/10S104J | ..... |
| R543 | RS1/10S105J | RS1/10S105J | ..... |
| R544, 545 | RS1/10S103J | RS1/10S103J | ..... |
| R546 | ..... | ..... | RS1/10S0R0J |
| R547 | ..... | ..... | RS1/10S0R0J |
| R548, 549 | RS1/10S105J | RS1/10S105J | RS1/10S104J |
| R640 | RS1/10S473J | RS1/10S473J | ..... |
| R641 | ..... | RS1/10S473J | RS1/10S473J |
| R643 | ..... | ..... | RS1/10S473J |
| R644 | RS1/10S473J | ..... | ..... |
| R717 | RS1/10S100J | RS1/10S100J | ..... |
| R721, 722, 723, 724 | RS1/10S104J | RS1/10S104J | ..... |
| R725-732 | RS1/10S471J | RS1/10S471J | ..... |
| R733, 734, 735, 736 | RS1/10S154J | RS1/10S154J | ..... |
| R737, 738, 739, 740 | RS1/10S334J | RS1/10S334J | ..... |
| R749, 750, 751, 752 | RS1/10S123J | RS1/10S123J | ..... |
| R753, 754, 755, 756 | RS1/10S103J | RS1/10S103J | ..... |
| R758, 770, 782, 786 | RS1/10S123J | RS1/10S123J | ..... |
| R759, 771, 783, 787 | RS1/10S562J | RS1/10S562J | ..... |
| R760, 772 | RS1/10S331J | RS1/10S331J | ..... |
| R769, 773 | RS1/10S331J | RS1/10S331J | ..... |
| R774, 775, 776, 777 | CCN1072 | CCN1072 | |
| R781, 784, 785, 788 | RS1/10S331J | RS1/10S331J | |

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- The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly.
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MISCELLANEOUS

| Circuit Symbol & No. | KEH-M780/US | KEH-M8550/ES | KEH-M8500/US |
|----------------------|-------------|--------------|--------------|
| | Part No. | Part No. | Part No. |
| IC507 | NJM2068MD1 | NJM2068MD1 | ..... |
| IC508 | TC4052BF | TC4052BF | ..... |
| IC509 | NJM2068MD1 | NJM2068MD1 | NJM4558M |
| Q505 | 2SD1684 | 2SD1684 | 2SD1859 |
| S602 | CSH1009 | CSH1009 | ..... |
| L801 | CTH1107 | CTH1103 | CTH1103 |
| IC702, 703, 704, 705 | NJM4558M | NJM4558M | ..... |
| Q703, 704, 705, 706 | 2SC2712 | 2SC2712 | ..... |
| Q708, 709, 710, 711 | 2SC2712 | 2SC2712 | ..... |
| L701, 702, 703, 704 | LAU2R2M | LAU2R2M | ..... |

RESISTORS

| Circuit Symbol & No. | KEH-M780/US | KEH-M8550/ES | KEH-M8500/US |
|----------------------|-------------|--------------|--------------|
| | Part No. | Part No. | Part No. |
| R515, 516 | RS1/10S333J | RS1/10S333J | ..... |
| R529, 530, 531, 532 | ..... | ..... | RS1/10SOR0J |
| R536 | RS1/10S473J | RS1/10S473J | ..... |
| R537-542 | RS1/10S104J | RS1/10S104J | ..... |
| R543 | RS1/10S105J | RS1/10S105J | ..... |
| R544, 545 | RS1/10S103J | RS1/10S103J | ..... |
| R546 | ..... | ..... | RS1/10SOR0J |
| R547 | ..... | ..... | RS1/10SOR0J |
| R548, 549 | RS1/10S105J | RS1/10S105J | RS1/10S104J |
| R640 | RS1/10S473J | RS1/10S473J | ..... |
| R641 | ..... | RS1/10S473J | RS1/10S473J |
| R643 | ..... | ..... | RS1/10S473J |
| R644 | RS1/10S473J | ..... | ..... |
| R717 | RS1/10S100J | RS1/10S100J | ..... |
| R721, 722, 723, 724 | RS1/10S104J | RS1/10S104J | ..... |
| R725-732 | RS1/10S471J | RS1/10S471J | ..... |
| R733, 734, 735, 736 | RS1/10S154J | RS1/10S154J | ..... |
| R737, 738, 739, 740 | RS1/10S334J | RS1/10S334J | ..... |
| R749, 750, 751, 752 | RS1/10S123J | RS1/10S123J | ..... |
| R753, 754, 755, 756 | RS1/10S103J | RS1/10S103J | ..... |
| R758, 770, 782, 786 | RS1/10S123J | RS1/10S123J | ..... |
| R759, 771, 783, 787 | RS1/10S562J | RS1/10S562J | ..... |
| R760, 772 | RS1/10S331J | RS1/10S331J | ..... |
| R769, 773 | RS1/10S331J | RS1/10S331J | ..... |
| R774, 775, 776, 777 | CCN1072 | CCN1072 | ..... |
| R781, 784, 785, 788 | RS1/10S331J | RS1/10S331J | ..... |

| Circuit Symbol & No. Part | | | | Name | Part No. | Circuit Symbol & No. Part | | | | Name | Part No. |
|---------------------------|-----|-----|-------------------------|------|--------------|---------------------------------|-----|-----|-----|------------------|-------------|
| R 805 | 806 | | | | RS1/10S273J | C 701 | 702 | | | CCSQCH101J50 | |
| R 856 | | | | | RS1/10S102J | C 703 | 704 | | | CEA220M16LS | |
| R 861 | | | | | RS1/10S473J | C 705 | | | | CKSQYB102K50 | |
| R 873 | | | | | RS1/10S102J | C 706 | | | | CKSQYB102K50 | |
| R 880 | 881 | 882 | 883 | | RS1/10S101J | C 729 | | | | CEV010M50 | |
| R 885 | | | | | RS1/10S0R0J | C 730 | 731 | 732 | | CEA010M50LS2 | |
| R 886 | | | | | RS1/10S472J | C 739 | | | | CEA330M10LS | |
| | | | | | | C 741 | 742 | 743 | 744 | CEA100M16LS2 | |
| CAPACITORS | | | | | | | | | | | |
| C 421 | 422 | | | | CEAS4R7M35 | Unit Number : | | | | | |
| C 451 | 452 | | | | CCSQCH270J50 | Unit Name : Key Board Unit | | | | | |
| C 453 | 471 | 537 | 538 | 566 | 567 | 614 | 633 | 636 | 640 | CCSQCH101J50 | |
| C 454 | 592 | 603 | | | CEA4R7M16LS2 | | | | | 2SC2712 | |
| C 455 | 458 | 461 | 506 | 643 | 717 | 718 | 719 | 720 | | CKSQYB103K25 | |
| C 457 | | | 4.7 μF/16V | | CCH1005 | IC 901 | | | | PDR001A | |
| C 459 | | | Chip Capacitor 0.047 μF | | CCG1008 | IC 902 | | | | RS-20 | |
| C 460 | | | | | CFTNA474J50 | Q 901 | 902 | | | 2SB1132 | |
| C 462 | | | | | CCSQL561J50 | Q 903 | | | | DTA114TK | |
| C 463 | 464 | 559 | 855 | | CKSQYB223K25 | Q 904 | | | | | |
| C 465 | | | | | CCSQCH101J50 | D 901 | 902 | 903 | 904 | 905 | 906 |
| C 467 | 468 | | | | CEAS2R2M50 | D 907 | 908 | 910 | 911 | 912 | 913 |
| C 469 | 520 | 601 | 613 | | CKSQYB103K25 | D 909 | | | | 914 | 915 |
| C 470 | 632 | | | | CCSQCH101J50 | L 901 | | | | | |
| C 501 | 502 | | | | CEA4R7M16LS2 | X 901 | | | | | |
| C 503 | 504 | | | | CCSQCH220J50 | S 901 | 902 | 903 | 904 | Switch | CSG1041 |
| C 505 | 510 | 542 | 543 | 612 | CEA2R2M50LS2 | S 905 | 906 | 907 | 908 | Switch | CSG1041 |
| C 507 | 508 | 509 | 514 | 515 | 518 | 519 | 553 | 554 | 590 | CEA100M16LS2 | CSG1041 |
| C 511 | | | | | CEA470M16LS | S 909 | 910 | 911 | 912 | Switch | CSG1041 |
| C 516 | 517 | | | | CKSQYB822K50 | S 913 | 914 | 915 | 916 | Switch | CSG1041 |
| C 517 | | | | | | S 917 | 918 | 919 | 920 | Switch | CSG1041 |
| C 521 | 522 | | | | CKSQYB183K25 | S 921 | | | | Switch | CSG1041 |
| C 523 | | | | | CCSQCH221J50 | IL 901 | 902 | 903 | 904 | Lamp 115mA 5V | CEL1294 |
| C 524 | | | | | CCSQSL221J50 | IL 905 | 906 | | | Lamp 115mA 5V | CEL1294 |
| C 525 | 526 | | | | CKSQYB152K50 | IL 907 | 908 | 909 | 910 | Lamp 95mA 5V | CEL1299 |
| C 527 | 528 | 602 | 607 | 609 | 721 | 722 | 723 | 724 | | Lamp 95mA 5V | CEL1299 |
| C 529 | 530 | | | | CEA100M50LS2 | IL 911 | 912 | | | | |
| C 531 | 532 | | | | CKSQYF224Z25 | LCD901 | | | | LCD | CAW1192 |
| C 533 | 534 | | | | CKSQYB332K50 | | | | | | |
| C 535 | 536 | | | | CEALNP2R2M35 | RESISTORS | | | | | |
| C 539 | 540 | | | | CKSQYB333K25 | R 901 | 902 | 903 | 904 | Switch | CSG1041 |
| C 541 | | | | | CEA100M16LS2 | R 905 | 906 | 907 | 908 | Switch | CSG1041 |
| C 552 | 561 | 568 | 569 | | CKSYF104Z25 | R 909 | 910 | 911 | 912 | Switch | CSG1041 |
| C 555 | | | | | CEA220M16LS | R 911 | 912 | 913 | 914 | Lamp 115mA 5V | CEL1294 |
| C 556 | 604 | 610 | | | CKSQYB273K25 | R 921 | | | | Lamp 115mA 5V | CEL1294 |
| C 557 | 560 | | | | CKSQYB473K16 | R 922 | | | | Lamp 95mA 5V | CEL1299 |
| C 558 | | | | | CKSQYB123K50 | R 923 | | | | Lamp 95mA 5V | CEL1299 |
| C 570 | 571 | 801 | 802 | | | R 924 | | | | | |
| C 572 | 573 | 576 | 577 | | CKSQYB682K50 | R 926 | 927 | 928 | 929 | 930 | RS1/10S470J |
| C 574 | 579 | | | | CEALNP4R7M16 | R 931 | | | | | RS1/10S471J |
| C 575 | | | | | CKSQYB682K50 | R 934 | | | | | RS1/10S471J |
| C 578 | | | | | CKSQYB682K50 | CAPACITORS | | | | | |
| C 580 | 581 | 582 | 583 | 584 | 585 | 586 | 587 | | | CKSQYB103K25 | |
| C 588 | | | | | CKSYB104K25 | C 901 | 904 | | | CSZSR100M6R3 | |
| C 591 | | | | | CEA100M16LS2 | C 902 | 903 | | | | |
| C 593 | | | | | CEA330M10LS | | | | | | |
| C 594 | 596 | 631 | 634 | | CKSQYB102K50 | Unit Number : | | | | | |
| C 597 | | | | | CEA100M16LS2 | Unit Name : Mechanism P.C.Board | | | | | |
| C 598 | 599 | | | | CEA4R7M16LS2 | S 1 | 2 | | | | |
| C 605 | | | | | CEA4R7M16LS2 | Switch(70 μ,Load) | | | | | |
| C 606 | | | 33 μF/10V | | CKSYB102K50 | EGN 1 | 2 | | | Photo Reflector | |
| C 608 | | | | | CEA100M16LS2 | R 1 | | | | | |
| C 611 | | | | | CEA4R7M16LS2 | R 2 | | | | | |
| C 615 | | | | | CKSYB102K50 | | | | | | |
| C 616 | | | | | CCSQCH330J50 | | | | | | |
| C 635 | | | | | CCH1128 | | | | | | |
| C 641 | | | | | CEA470M16LS | Miscellaneous Parts List | | | | | |
| C 642 | | | | | CEAS101M10 | S 600 | | | | | |
| C 644 | | | | | CASAQ4R7M10 | HD 1 | | | | Switch(Detach) | |
| C 650 | | | 3300 μF/16V | | CCSQCH330J50 | M 1 | | | | Head Assy | |
| C 651 | | | | | CEAS102M16 | M 2 | | | | Motor Unit(Main) | |
| | | | | | CCSQCH101J50 | | | | | Motor Unit(Sub) | |
| | | | | | CEHAQ102M16 | | | | | | |
| | | | | | CKSQYB473K25 | | | | | | |
| | | | | | CCH1130 | | | | | | |
| | | | | | CKSQYB102K50 | | | | | | |

• The KEH-M8550/ES and KEH-M8500/US Parts Lists enumerate the parts which differ from those enumerated in the KEH-M780/US Parts List only.

The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly.

The KEH-M780/US Parts List is given on page 73.

MISCELLANEOUS

| Circuit Symbol & No. | KEH-M780/US | KEH-M8550/ES | KEH-M8500/US |
|----------------------|-------------|--------------|--------------|
| | Part No. | Part No. | Part No. |
| IC507 | NJM2068MD1 | NJM2068MD1 | ..... |
| IC508 | TC4052BF | TC4052BF | ..... |
| IC509 | NJM2068MD1 | NJM2068MD1 | NJM4558M |
| Q505 | 2SD1684 | 2SD1684 | 2SD1859 |
| S602 | CSH1009 | CSH1009 | ..... |
| L801 | CTH1107 | CTH1103 | CTH1103 |
| IC702, 703, 704, 705 | NJM4558M | NJM4558M | ..... |
| Q703, 704, 705, 706 | 2SC2712 | 2SC2712 | ..... |
| Q708, 709, 710, 711 | 2SC2712 | 2SC2712 | ..... |
| L701, 702, 703, 704 | LAU2R2M | LAU2R2M | ..... |

RESISTORS

| Circuit Symbol & No. | KEH-M780/US | KEH-M8550/ES | KEH-M8500/US |
|----------------------|-------------|--------------|--------------|
| | Part No. | Part No. | Part No. |
| R515, 516 | RS1/10S333J | RS1/10S333J | ..... |
| R529, 530, 531, 532 | ..... | ..... | RS1/10S0R0J |
| R536 | RS1/10S473J | RS1/10S473J | ..... |
| R537-542 | RS1/10S104J | RS1/10S104J | ..... |
| R543 | RS1/10S105J | RS1/10S105J | ..... |
| R544, 545 | RS1/10S103J | RS1/10S103J | ..... |
| R546 | ..... | ..... | RS1/10S0R0J |
| R547 | ..... | ..... | RS1/10S0R0J |
| R548, 549 | RS1/10S105J | RS1/10S105J | RS1/10S104J |
| R640 | RS1/10S473J | RS1/10S473J | ..... |
| R641 | ..... | RS1/10S473J | RS1/10S473J |
| R643 | ..... | ..... | RS1/10S473J |
| R644 | RS1/10S473J | ..... | ..... |
| R717 | RS1/10S100J | RS1/10S100J | ..... |
| R721, 722, 723, 724 | RS1/10S104J | RS1/10S104J | ..... |
| R725-732 | RS1/10S471J | RS1/10S471J | ..... |
| R733, 734, 735, 736 | RS1/10S154J | RS1/10S154J | ..... |
| R737, 738, 739, 740 | RS1/10S334J | RS1/10S334J | ..... |
| R749, 750, 751, 752 | RS1/10S123J | RS1/10S123J | ..... |
| R753, 754, 755, 756 | RS1/10S103J | RS1/10S103J | ..... |
| R758, 770, 782, 786 | RS1/10S123J | RS1/10S123J | ..... |
| R759, 771, 783, 787 | RS1/10S562J | RS1/10S562J | ..... |
| R760, 772 | RS1/10S331J | RS1/10S331J | ..... |
| R769, 773 | RS1/10S331J | RS1/10S331J | ..... |
| R774, 775, 776, 777 | CCN1072 | CCN1072 | ..... |
| R781, 784, 785, 788 | RS1/10S331J | RS1/10S331J | ..... |

CAPACITORS

| Circuit Symbol & No. | KEH-M780/US | KEH-M8550/ES | KEH-M8500/US |
|----------------------|--------------|--------------|--------------|
| | Part No. | Part No. | Part No. |
| C553, 554 | CEA100M16LS2 | CEA100M16LS2 | CEA2R2M50LS2 |
| C555 | CKSQYB273K25 | CKSQYB273K25 | ..... |
| C556 | CKSQYB473K16 | CKSQYB473K16 | ..... |
| C557, 560 | CKSQYB123K50 | CKSQYB123K50 | ..... |
| C558 | CKSQYB682K50 | CKSQYB682K50 | ..... |
| C559 | CKSQYB223K25 | CKSQYB223K25 | ..... |
| C593 | CKSQYB102K50 | CKSQYB102K50 | ..... |
| C717, 718, 719, 720 | CKSQYB103K25 | CKSQYB103K25 | ..... |
| C721, 722, 723, 724 | CEA010M50LS2 | CEA010M50LS2 | ..... |
| C729 | CEV010M50 | CEV010M50 | ..... |
| C730, 731, 732 | CEA010M50LS2 | CEA010M50LS2 | ..... |
| C739 | CEA330M10LS | CEA330M10LS | ..... |
| C741, 742, 743, 744 | CEA100M16LS2 | CEA100M16LS2 | ..... |